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The Future Is Better Than You Think

富足



改变人类未来的4大力量

彼得·戴曼迪斯以丰富而有力的证据告诉我们
未来比我们想象的更美好

[美] 彼得·戴曼迪斯（Peter H. Diamandis） 史蒂芬·科特勒（Steven Kotler）◎著
贾拥民◎译

X大奖创始人、奇点大学执行主席彼得·戴曼迪斯
震撼之作

浙江人民出版社
ZHEJIANG PEOPLE'S PUBLISHING HOUSE

湛庐文化
财富汇
富足
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[美] 彼得·戴曼迪斯 史蒂芬·科特勒◎著



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Abundance□The Future Is Better Than you think

PETER DIAMANDIS

全球商业太空探索的领军人
和 X 大奖创始人

彼得·戴曼迪斯








全球商业太空探索的领军人

戴曼迪斯从小就喜欢太空探索。8岁时，他就坐在父母旁边给他们讲阿波罗登月的故事。结果，爸爸给了他5美元，这是戴曼迪斯在太空探索方面赚到的第一笔钱。12岁时，他设计的“三箭齐发”发射系统，在“埃斯蒂斯火箭设计大赛”（Estes Rocket Design Competition）中一举夺魁。

高中毕业后，戴曼迪斯进入麻省理工学院（MIT）学习生物学和物理学，并在MIT获得航空航天工程学士和硕士学位。戴曼迪斯的父亲是个医生，在父亲的影响下，戴曼迪斯进入哈佛大学医学院，并获得医学博士学位。

戴曼迪斯是商业性太空探索的领导者，他共创立了十几家商业太空探索公司。2007年4月26日，作为零重力公司（Zero Gravity Corporation）的总裁，彼得·戴曼迪斯陪伴当时65岁的著名物理学家史蒂芬·霍金体验了8轮次的“零重力”抛物线飞行。

自2001年以来，戴曼迪斯创立的太空探险公司（Space Adventures, Ltd.）已将8位顾客送上了国际空间站。

PETER DIAMANDIS

X大奖创始人





戴曼迪斯的童年，正是阿波罗登月的时代。此后的几十年，他对美国国家宇航局在太空探索上的作为彻底失望。他确信，只有鼓励私人太空探索才是正途。于是，戴曼迪斯决定创立X大奖基金会，并亲任主席兼首席执行官，用X大奖的形式鼓励私人太空探索。2004年10月，微软公司联合创始人保罗·艾伦资助的“太空船一号”赢得了1000万美元的太空飞行“安萨里X大奖”（Ansari X Prize），并吸引7家公司投入了1亿美元。

在此之后，为了激励人们的创新活动，X大奖基金会在环保、汽车、健康等领域陆续设立了其他X大奖：

- 每加仑汽油可行驶100英里的汽车X大奖（Progressive Insurance Automotive X PRIZE），奖金高达1000万美元，引发了提高燃油效率的创新热潮；
- 0.9版三录仪X大奖（Qualcomm Tricorder X Prize）的1000万美元奖金，将颁发给首个非侵入性的健康诊断工具；
- Tri-State碳捕获X大奖（Carbon Capture X Prize），只要有团队能够开发利用煤电厂的排放物，捕获最多的二氧化碳，并将它制作成最有价值的产品，就可以获奖；
- 谷歌月球X大奖，第一名奖金2000万美元。目标：送一辆月球车到月球表面，月球车至少行驶500米，并实现与地球通信。2014年2月19日，组织者宣布共有5个团队进入决赛。这项大奖的截止日期是2015年12月。

X大奖真的成了一个效果奇佳的创新引擎。





为了训练人们思考技术变革的指数型增长步伐，从容应对科技的快速发展以及科技给人类带来的重大挑战，戴曼迪斯和库兹韦尔提出：要聚集世界上最聪明的大脑，让他们学习最前沿的未来科学，去解决世界上最宏大的问题。这两位老朋友的观点得到了美国国家宇航局和谷歌公司的支持，他们共同创立了“奇点大学”（Singularity University），并任命戴曼迪斯为奇点大学执行主席。

奇点大学的神圣使命，就是培养面向未来的、有“全球性”和“指数性”思维方式的人才。奇点大学精心挑选了8个指数型增长的领域，以此为标准来设置奇点大学的核心课程：生物技术和生物信息学、计算系统、网络和传感器、人工智能、机器人科学、数字化制造、医学、纳米材料和纳米技术。

奇点大学催生了很多创业公司，有些项目还拿了大奖。戴曼迪斯说：“X大奖设置了目标，给人以启发，而奇点大学则是催化剂，是创新的推动力。”

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16 周末•读书

李嘉诚的这本案头书，讲些什么

ABUNDANCE

富足

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THE
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IS BETTER THAN
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| 第一部分 |

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Judgment Under Uncertainty:Heuristics

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90% “ ”

Baylor College of Medicine ·David Eagleman “ 2/3 ”

· Marc Siegel *False Alarm:The Truth About the Epidemic of Fear*

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[illegible]“[illegible]18[illegible]500[illegible]”[illegible]·[illegible]Kevin Kelly[illegible]*What Technology Wants*[illegible]“[illegible]10[illegible]10[illegible]12[illegible]”

[illegible]“[illegible]”[illegible]disruptive convergence[illegible]“[illegible]”[illegible]10[illegible]Blockbuster[illegible]Tower Records[illegible]YouTube[illegible]16.5[illegible]18[illegible]Groupon[illegible]60[illegible]

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[illegible]“[illegible]”[illegible]·[illegible]1960[illegible]*The Constitution of Liberty*[illegible]“[illegible]”

[illegible]

[illegible]80%[illegible]

[illegible]·[illegible]Steven Pinker[illegible]*A History of Violence: We’re Getting Nicer Every Day*[illegible]

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BUNDANCE

| 第二部分 |

指数型发展的技术——实现富足的最重要力量

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[illegible]10[illegible]·[illegible]Gordon Moore[illegible]1965[illegible]Fairchild Semiconductor[illegible]*Cramming More Components onto Integrated Circuits*[illegible]1958[illegible]“[illegible]10[illegible]”[illegible]10[illegible]10[illegible]10[illegible]……[illegible]50[illegible]“[illegible]”[illegible]

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[illegible]*The Age of Intelligent Machines*[illegible]1988[illegible]1999[illegible]2009[illegible]2019[illegible]2029[illegible]2099[illegible]2009[illegible]108[illegible]89[illegible]13[illegible]

[illegible]2005[illegible]*The Singularity Is Near*[illegible]10[illegible]10[illegible]

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[illegible]2011[illegible]6[illegible]2020[illegible]·[illegible]Sebastian Thrun[illegible]Stanford Artificial Intelligence Laboratory[illegible]“[illegible]5 000[illegible]120[illegible]”

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[illegible]·[illegible]Scott Hassan[illegible]30[illegible]“[illegible]”[illegible]*I, Robot*[illegible]

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1996[illegible]·[illegible]·[illegible]Sergey Brin[illegible]——[illegible]eGroups[illegible]eGroups[illegible]4.12[illegible]

[illegible]Willow Garage[illegible]——[illegible]——PR2[illegible]Personal Robot 2[illegible]PR2[illegible]4[illegible]PR2[illegible]R2D2[illegible]

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2008[illegible]2015[illegible]2006[illegible]2015[illegible]62 900[illegible]2020[illegible]91 500[illegible]

[illegible]·[illegible]George M. Whitesides[illegible]“[illegible]60%[illegible]”

[illegible]·[illegible]Dr. Anita Goel[illegible]Nanobiosym[illegible]·[illegible]“[illegible]”

[illegible]2009[illegible]Mayo Clinic[illegible]“[illegible]”[illegible]——[illegible]99%[illegible]CT[illegible]“[illegible]”[illegible]

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[illegible]·[illegible]1959[illegible]*There’s Plenty of Room at the Bottom*[illegible]K.[illegible]·[illegible]K. Eric Drexler[illegible]1986[illegible]*Engines of Creation*[illegible]“[illegible]”[illegible]“[illegible]”[illegible]10[illegible]10[illegible]

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BUNDANCE

|第三部分|

实现富足的另外3种力量

07 “DIY”[illegible]

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[illegible]*The Electric Kool-Aid Acid Test*[illegible]·[illegible]Tom Wolfe[illegible]“[illegible]”[illegible]·[illegible]Stewart Brand[illegible]·[illegible]Ken Kesey[illegible]“[illegible]” [illegible]Merry Prankster[illegible]“DIY”[illegible]“DIY”[illegible]

[illegible]1968[illegible]3[illegible]·[illegible]Barbara Ward[illegible]*Spaceship Earth*[illegible]

[illegible]L. L. Bean[illegible]“DIY”[illegible]1841[illegible]*Self-Reliance*[illegible]20[illegible]20[illegible]50[illegible]20[illegible]60[illegible]1 000[illegible]“DIY”[illegible]——[illegible]“[illegible]·[illegible]Buckminster Fuller[illegible]”[illegible]“[illegible]‘[illegible]’[illegible]”

[illegible]*Whole Earth Catalog*[illegible]1968[illegible]7[illegible]6[illegible]“[illegible]”[illegible]“DIY”[illegible]“DIY”[illegible]TED[illegible]·[illegible]·[illegible]Richard Saul Wurman[illegible]“[illegible]

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[illegible]“[illegible]”[illegible]“DIY”[illegible]“[illegible]”[illegible]hacker ethic[illegible]“[illegible]”——“[illegible]”[illegible]·[illegible]Howard Rheingold[illegible]“[illegible]DIY[illegible]”[illegible]·[illegible]Fred Moore[illegible]

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[illegible]1975[illegible]

[illegible]·[illegible]John Draper[illegible]——[illegible]"[illegible]"[illegible]Captain Crunch[illegible]·[illegible]Adam Osborne [illegible]·[illegible]Lee Felsenstein[illegible]·[illegible]Steve Wozniak[illegible]·[illegible]"[illegible]"[illegible]"[illegible]"[illegible]·[illegible]John Markoff[illegible]*What the Dormouse Said*[illegible]

> [illegible]……[illegible]23[illegible]·[illegible]Ted Nelson[illegible]"[illegible]"[illegible]

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[illegible]1952[illegible]（National Advisory Committee for Aeronautics [illegible]NACA[illegible]10[illegible]3[illegible]/[illegible]100[illegible]X[illegible]X-1——[illegible]·[illegible]Chuck Yeager[illegible]X-15——[illegible]·[illegible]Joe Walker[illegible]

X-15[illegible]“[illegible]”[illegible]“[illegible]X”（Inconel X[illegible]X-15[illegible]B-52[illegible]“[illegible]”[illegible]X-15[illegible]13.7[illegible]——[illegible]·[illegible]

[illegible]1963[illegible]7[illegible]19[illegible]X-15[illegible]100[illegible]X-15[illegible]1969[illegible]3[illegible]——[illegible]3[illegible]15[illegible]·[illegible]

[illegible]1982[illegible]45[illegible]Voyager[illegible]Proteus[illegible]

[illegible]“[illegible]1903[illegible]”[illegible]“[illegible]1908[illegible]10[illegible]‘[illegible]’[illegible]1909—1912[illegible]31[illegible]5 000[illegible]”

[illegible]1961[illegible]X-15[illegible]Redstone[illegible]

[illegible]Atlas[illegible]Titan[illegible]Saturn[illegible]Shuttle[illegible]Vostok[illegible]Voskhod[illegible]Soyuz[illegible]2010[illegible]4[illegible]49[illegible]300[illegible]500[illegible]——[illegible]

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[illegible]1[illegible]SpaceShipOne[illegible]X-15[illegible]2004[illegible]1[illegible]2 600[illegible]30[illegible]1[illegible]3[illegible]5[illegible]Saint Louis[illegible]·[illegible]James S. McDonald Planetarium[illegible]·[illegible]Gregg Maryniak[illegible]“[illegible]1[illegible]”

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[illegible]·[illegible]·[illegible]Chris Anderson[illegible]——[illegible]4[illegible]“[illegible]”[illegible]——[illegible]4[illegible]“[illegible]20[illegible]9[illegible]9[illegible]”

[illegible]“DIY”[illegible]DIY Drones[illegible]17 000[illegible]Raven[illegible]AeroVironment[illegible]35 000[illegible]25[illegible]“DIY”[illegible]90%[illegible]QuadCopter[illegible]300[illegible]90%[illegible]——[illegible]1%[illegible]“DIY”[illegible]100[illegible]

[illegible]1902[illegible]*Popular Mechanics*[illegible]20[illegible]50[illegible]“[illegible]”[illegible]*Make*[illegible]·[illegible]Dale Daugherty[illegible]“[illegible]”

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[illegible]10^{9+}[illegible]AI-enabled network of

UAVs[illegible]——[illegible]6[illegible]

[illegible]1900[illegible]

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[illegible]21[illegible]·[illegible]Drew Endy[illegible]RadioShack[illegible]DNA[illegible]1[illegible]0[illegible]A[illegible]C[illegible]T[illegible]G[illegible]RNA[illegible]“[illegible]DNA[illegible]”

2002[illegible]·[illegible]Gerald Sussman[illegible]·[illegible]Randy Rettberg[illegible]·[illegible]Tom Knight[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]·[illegible]James Watson[illegible]·[illegible]Francis Crick[illegible]1953[illegible]Genentech[illegible]Human Genome Project[illegible]

[illegible]5[illegible]2008[illegible]2010[illegible]Delft University of Technology[illegible]“alkanivore”[illegible]“[illegible]”[illegible]

[illegible]“DIY”[illegible]2004[illegible]5[illegible]50[illegible]“[illegible]”[illegible]32[illegible]“[illegible]”[illegible]724[illegible]2010[illegible]130[illegible]“[illegible]”[illegible]1 863[illegible]5 000[illegible]“[illegible]”

[illegible]·[illegible]Rob Carlson[illegible]DIY[illegible]

> [illegible]eBay[illegible]1 000[illegible]DNA[illegible]BestUse[illegible]LabX[illegible]DNA[illegible]PCR[illegible]6[illegible]——[illegible]DNAHack[illegible]

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[illegible]Enterprise Community Partners[illegible]*Fast Company*[illegible]“[illegible]”[illegible]25[illegible]Fort Apache[illegible]Tenderloin[illegible]90%[illegible]20[illegible]（Department of Housing and Urban Development[illegible]HUD[illegible]

[illegible]“DIY”[illegible]

[1] 401K[illegible]20[illegible]80[illegible]401K[illegible]1978[illegible]401（K[illegible]1979[illegible]1981[illegible]401K[illegible]20[illegible]90[illegible]——[illegible]

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2011[illegible]4[illegible]16[illegible]X[illegible]“[illegible]”[illegible]TED[illegible]

X[illegible]“[illegible]”[illegible]Fox Filmed Entertainment[illegible]·[illegible]Jim Gianopulos[illegible]·[illegible]Cary Grant[illegible]·[illegible]Luke Skywalker[illegible]

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[illegible]HTML code[illegible]PayPal[illegible]eBay[illegible]——[illegible]iPad[illegible]

[illegible]600[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]70[illegible]·[illegible]John D. Rockefeller[illegible]

[illegible]·[illegible]Andrew Carnegie[illegible]·[illegible]·[illegible]James B. Duke[illegible]·[illegible]Richard Sears[illegible]·[illegible]……[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]“[illegible]·[illegible]——[illegible]·[illegible]Ivy Lee[illegible]”[illegible]·[illegible]·[illegible]Justin Rockefeller[illegible]“[illegible]·[illegible]1/10[illegible]1855[illegible]95[illegible]10%[illegible]”[illegible]9.5[illegible]1910[illegible]5 000[illegible]1937[illegible]

[illegible]——[illegible]·[illegible]·[illegible]·[illegible]*The Gospel of Wealth*[illegible]

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1892[illegible]4 047[illegible]4 047[illegible]31%[illegible]

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[illegible]eBay[illegible]·[illegible]Jeff Skoll[illegible]“[illegible]‘[illegible]’[illegible]”

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[illegible]（triple-bottom-line）[1][illegible]“[illegible]”[illegible]——[illegible]eBay[illegible]·[illegible]“[illegible]”[illegible]·[illegible]Matthew Bishop[illegible]《*Philanthrocapitalism: How the Rich Can Save the World*》[illegible]“[illegible]——[illegible]”

[illegible]“[illegible]——[illegible]”

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]（Monitor Group）[illegible]2009[illegible]500[illegible]10[illegible]5 000[illegible]

[illegible]（Social Ventures Partners Seattle）[illegible]· [illegible]（Paul Shoemaker）[illegible]“[illegible]‘[illegible]’[illegible]‘[illegible]’[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”

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[illegible]“[illegible]”——[illegible]Boston College Center on Wealth and Philanthropy[illegible]·[illegible]Paul Schervish[illegible]·[illegible]“[illegible]”[illegible]“[illegible]——[illegible]” [illegible]

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[illegible]2010[illegible]·[illegible]·[illegible]“[illegible]”[illegible]· [illegible]George Soros[illegible]·[illegible]Ted Turner[illegible]·[illegible]David Rockefeller[illegible]·[illegible]·[illegible]Larry Ellison[illegible]·[illegible]Paul Allen[illegible]AOL[illegible]·[illegible]Steve Case[illegible]Facebook[illegible]·[illegible]·[illegible]Dustin Moskovitz[illegible]2011[illegible]7[illegible]69[illegible]

[illegible]·[illegible]Mo Ibrahim[illegible]Ibrahim Prize for Achievement in African Leadership[illegible]——[illegible]500[illegible]20[illegible]

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[1] “[illegible]”[illegible]·[illegible]John Elkington[illegible]1997[illegible]——[illegible]

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[illegible]·[illegible]Stuart Hart[illegible]1985[illegible]·[illegible]·[illegible]Coimbatore Krishnarao Prahalad[illegible]C. K.[illegible]“[illegible]”[illegible]“[illegible]”[illegible]1994[illegible]·[illegible]Gary Hamel[illegible]*Competing for the Future*[illegible]“[illegible]”[illegible]

[illegible]20[illegible]80[illegible]“[illegible]”[illegible]“[illegible]1990[illegible]”

[illegible]1997[illegible]——[illegible]*Beyond Greening: Strategies for a Sustainable World*[illegible]

[illegible]16[illegible]——[illegible]“[illegible]4[illegible]10[illegible]2002[illegible]*The Fortune at the Bottom of the Pyramid*[illegible]+[illegible]*Strategy + Business*[illegible]BoP business[illegible]”

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[illegible]·[illegible]Arvind Mills[illegible]40~60[illegible]"[illegible]·[illegible]'Ruf & Tuf'[illegible]"[illegible]"[illegible]——[illegible]6[illegible]·[illegible]'Ruf & Tuf'[illegible]Levi's[illegible]"

2004[illegible]"[illegible]"[illegible]"[illegible]40[illegible]~50[illegible]13[illegible]"[illegible]12[illegible]——[illegible]

[illegible]Grameenphone[illegible]1997[illegible]2011[illegible]2[illegible]3 000[illegible]16[illegible]——[illegible]"[illegible]"[illegible]10[illegible]GDP[illegible]0.6[illegible]

[illegible]·[illegible]Nicholas Sullivan[illegible]*You Can Hear Me Now: How Microloans and Cell Phones Are Connecting the World's Poor to the Global Economy*[illegible]

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[illegible]3~4[illegible]——[illegible]

[illegible]2007[illegible]Safaricom[illegible]M-PESA[illegible]20 000[illegible]4[illegible]15[illegible]4[illegible]1 300[illegible]2007[illegible]2011[illegible]160[illegible]2014[illegible]68%[illegible]5[illegible]M-PESA[illegible]5%~30%[illegible]

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[illegible]50[illegible]10[illegible]·[illegible]William Easterly[illegible]“[illegible]50[illegible]2.3[illegible]12[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

20[illegible]70[illegible]1986[illegible]·[illegible]Paul Collier[illegible]10[illegible]*The Bottom Billion*[illegible] [illegible]“[illegible]”

[illegible]30[illegible]“[illegible]”[illegible]——[illegible]“[illegible]——[illegible]‘[illegible]’[illegible]”[illegible]“[illegible]”[illegible]

[illegible]3G[illegible]4G[illegible]MarketShare[illegible]·[illegible]Jeffrey Rayport[illegible]*Technology Review*[illegible]“[illegible]10[illegible]……[illegible]50[illegible]2/3[illegible]”

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[illegible]·[illegible]Steven Johnson[illegible]*Where Good Ideas Come From*[illegible]18[illegible]“[illegible]”[illegible]·[illegible]*Java Man*[illegible]“[illegible]18[illegible]‘[illegible]’[illegible]——[illegible]”

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[illegible]GPS[illegible]14[illegible]10[illegible]2011[illegible]25[illegible]42.5[illegible]200[illegible]

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[illegible]21[illegible]rival goods[illegible]nonrival goods[illegible]·[illegible]Paul Romer[illegible]“[illegible]3[illegible]4[illegible]5[illegible]”

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“[illegible]10[illegible]”[illegible]·[illegible]Paul Ingraham[illegible]“[illegible]10[illegible]1~2[illegible]”

[illegible]*Nonzero: The Logic of Human Destiny*[illegible]·[illegible]Robert Wright[illegible]“[illegible]”

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1861[illegible]Pony Express[illegible]·[illegible]William Russell[illegible]·[illegible]“[illegible]”[illegible]16[illegible]17[illegible]7[illegible]

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[illegible]200[illegible]·[illegible]Jeffery Sachs[illegible]*Common Wealth*[illegible]——[illegible]

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[illegible]3[illegible]1994[illegible]3[illegible]Linux 1.0[illegible]2006[illegible]11.4[illegible]Linux[illegible]2.6.8[illegible]2008[illegible]Linux[illegible]357[illegible]

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300 000[illegible]2011[illegible]
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YouTube[illegible]48[illegible]21[illegible]
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[illegible]·[illegible]Jonathan Greenblatt[illegible]“[illegible]”[illegible]Ethos Water[illegible]2005[illegible]·[illegible]Howard Schultz[illegible]“[illegible]”[illegible]“[illegible]”[illegible]7 000[illegible]“[illegible]”[illegible]1 000[illegible]“[illegible]”[illegible]5[illegible]50[illegible]

[illegible]10[illegible]1 000[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]10[illegible]·[illegible]

[illegible]25[illegible]20%[illegible]20%[illegible]30[illegible]40[illegible]30[illegible]12[illegible]4 000[illegible]4 000[illegible]

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400[illegible]“[illegible]450[illegible]”

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[illegible]90[illegible]90[illegible]97.3%[illegible]2%[illegible]“[illegible]”[illegible]——[illegible]·[illegible]“DIY”[illegible]

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[illegible]20[illegible]70[illegible]

[illegible]24[illegible]1982[illegible]DEKA Research and Development[illegible]Segway[illegible][2][illegible]“[illegible]”[illegible]Luke Arm[illegible]

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[illegible]2011[illegible]5[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]100[illegible]“[illegible]”[illegible]

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[illegible]“[illegible]”[illegible]

[illegible]——[illegible]——[illegible]3[illegible]3[illegible]

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[illegible]·[illegible]Michael Pritchard[illegible]“[illegible]”[illegible]TED[illegible]“[illegible]”

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[illegible]25 000[illegible]——[illegible]
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[illegible]IBM[illegible]Central Glass[illegible]
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IBM“[illegible]”[illegible]“[illegible]”[illegible]·[illegible]Peter Williams[illegible]“[illegible]”[illegible]“[illegible]”[illegible]70%[illegible]50%[illegible]5%[illegible]20%[illegible]“[illegible]”[illegible]“[illegible]”

[illegible]“[illegible]”[illegible]Water Innovations Alliance[illegible]·[illegible]Mark Modzelewski[illegible]30%~50%[illegible]

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[illegible]19[illegible]·[illegible]Thomas Crapper[illegible]·[illegible]Sir John Harington[illegible]1596[illegible]206[illegible]“[illegible]”[illegible]2 400[illegible]“[illegible]”[illegible]

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1990[illegible]·[illegible]Carl Sagan[illegible]——[illegible]1[illegible]Voyager 1 spacecraft[illegible]

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[1] “[illegible]”[illegible]“[illegible]”[illegible]——[illegible]

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[illegible] “[illegible]” [illegible] 10% [illegible] 2000 [illegible] 7 [illegible] 500 [illegible] 7 000 [illegible] 3 [illegible] 100 [illegible] BioCassava Plus project [illegible]·[illegible] A [illegible] E [illegible] 2020 [illegible] 2.5 [illegible]

[illegible]·[illegible]Pamela Ronald[illegible]·[illegible]Raoul Adamchak[illegible]*Tomorrow’s Table: Organic Farming, Genetics, and the Future of Food*[illegible]“[illegible]”[illegible]·[illegible]Michael Pollan[illegible]Long Now Foundation[illegible]“[illegible]”[illegible]·[illegible]“[illegible]”

[illegible]——[illegible]10[illegible]Institute for Food and Development Policy[illegible]1.1[illegible]0.45[illegible]0.45[illegible]“[illegible]”[illegible]

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[illegible]·[illegible]Francis Bacon[illegible]1627[illegible]*Natural History in Ten Centuries*[illegible]20[illegible]30[illegible]

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[illegible]70%[illegible]70%[illegible]70%[illegible]70%[illegible]6%——[illegible]

“[illegible]”[illegible]·[illegible]Dickson Despommier[illegible]“[illegible]10[illegible]”

[illegible]2009[illegible]1999[illegible]

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[illegible]“[illegible]”[illegible]“[illegible]”[illegible]20[illegible]Plantagon[illegible]5[illegible]Plantagon[illegible]10 000[illegible]100 000[illegible]

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[illegible]1990—2002[illegible]1961[illegible]3.6[illegible]2002[illegible]52.4[illegible]

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[illegible]2003[illegible]90%[illegible]·[illegible]Sylvia Earle[illegible]

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[illegible]·[illegible] Will Allen [illegible]“[illegible]”[illegible] Growing Power [illegible]“[illegible]”[illegible] 416 [illegible] 10 [illegible]——[illegible]

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[illegible]20[illegible]90[illegible]“[illegible]”[illegible]2000[illegible]2007[illegible]——[illegible]In Vitro Meat Consortium[illegible]People for the Ethical Treatment of Animals[illegible]PETA[illegible]100[illegible]2009[illegible]10[illegible]

[illegible]“[illegible]”[illegible]New Harvest[illegible]·[illegible]Jason Matheny[illegible]“[illegible]”

[illegible]70%[illegible]——[illegible]

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[illegible]10~15[illegible]

[illegible]

[illegible]57[illegible]80%[illegible]116%[illegible]push-pull system[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]100%~400%[illegible]

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THE
FUTURE
IS BETTER THAN
YOU
THINK

BUNDANCE

|第五部分|

建造金字塔的中间层和顶层

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[illegible]New Energy Technologies[illegible]10[illegible]

[illegible]·[illegible]Stephen Rand[illegible]1[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

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[illegible]*Bloomberg New Energy Finance*[illegible]2011[illegible]68[illegible]67[illegible]Vestas[illegible]2009—2010[illegible]182%[illegible]2011[illegible]20%[illegible]2015[illegible]

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[illegible]“[illegible]”[illegible]“[illegible]”[illegible]Joint Center for Artificial Photosynthesis[illegible]·[illegible]1.22[illegible]Caltech Center for Sustainable Energy Research[illegible]·[illegible]Dr. Harry Atwater[illegible]“[illegible]‘[illegible]’[illegible]——[illegible]‘[illegible]’[illegible]2/3[illegible]”

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[illegible]KPCB[illegible]Kleiner Perkins Caufield & Byers[illegible]KPCB[illegible]KPCB[illegible]425[illegible]Electronic Arts[illegible]KPCB[illegible]·[illegible]John Doerr[illegible]KPCB[illegible]

2011[illegible]·[illegible]KPCB[illegible]Primus Power[illegible]“[illegible]”[illegible]——[illegible]“[illegible]”[illegible]4 700[illegible]25[illegible]75[illegible]

KPCB[illegible]Aquion Energy[illegible]——[illegible]

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[illegible]·[illegible]·[illegible]·[illegible]James Lovelock[illegible]·[illegible]Bill Mckibben[illegible]40[illegible]*Prescription for the Planet*[illegible]·[illegible]Tom Blees[illegible]“[illegible]20[illegible]70[illegible]”

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system □ “ □ □ □ □

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[illegible]1 000[illegible]1 000[illegible]“[illegible]1 000[illegible]1 000[illegible]”[illegible]“[illegible]”[illegible]PDA[illegible]“[illegible]”[illegible]15[illegible]2010[illegible]10[illegible]“[illegible]”[illegible]iPhone[illegible]iPhone[illegible]——[illegible]90[illegible]140[illegible]2007[illegible]

[illegible]·[illegible]Arianna Huffington[illegible]

> [illegible]

[illegible]19[illegible]·[illegible]Sri Ramakrishna[illegible]“[illegible]”[illegible]

[illegible]

[illegible]1996[illegible]5[illegible]X[illegible]

[illegible]4[illegible]1 000[illegible]1927[illegible]50[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]·[illegible]Jeff Bezos[illegible]·[illegible]·[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]1996[illegible]5[illegible]18[illegible]“[illegible]”[illegible]·[illegible]Erik Lindbergh[illegible]·[illegible]Morgan Lindbergh[illegible]·[illegible]20[illegible]·[illegible]·[illegible]Patti Grace Smith[illegible]·[illegible]

[illegible]X[illegible]

[illegible]“[illegible]1 000[illegible]”[illegible]“[illegible]”[illegible]1 000[illegible]——[illegible]5[illegible]1 000[illegible]5[illegible]

[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]X[illegible]

[illegible]“[illegible]”

1997[illegible]“[illegible]‘[illegible]’”[illegible]“[illegible]”[illegible]Here’s to the crazy ones[illegible]

> [illegible]……[illegible]——[illegible]……[illegible]……[illegible]

[illegible]——[illegible]·[illegible]Bob Dylan[illegible]·[illegible]·[illegible]

[illegible]

[illegible]·[illegible]“[illegible]‘[illegible]’[illegible]……[illegible]——‘[illegible]’[illegible]”[illegible]

[illegible]“[illegible]”[illegible]20[illegible]60[illegible]·[illegible]“[illegible]”[illegible]

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30 30 “ ” 20

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· Scott Cook

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· Michael Schrage

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5 5 ‘ ’ ‘ ’ 5

[illegible]‘[illegible]’[illegible]5 000[illegible]‘[illegible]’[illegible]
[illegible]”

[illegible]——[illegible]5[illegible]5 000[illegible]

[illegible]

[1] [illegible]*All in Family*[illegible]·[illegible]*Archie Bunker’s Place*[illegible]——[illegible]

19 [illegible]

[illegible]“[illegible]”[illegible]75 000[illegible]10 000[illegible]

Stuart Kauffman

adjacent possible

10 000

[illegible]–[illegible]Gallup-Healthways Well-Being Index[illegible]45[illegible]“[illegible]”

[illegible]“[illegible]”[illegible]

[illegible]75 000[illegible]75 000[illegible]2008[illegible]

[illegible]75%~80%[illegible]90%[illegible]“[illegible]”[illegible]

[illegible]

[illegible]·[illegible]10 000[illegible]

[illegible]40[illegible]

[illegible]10 000[illegible]

20[illegible]CD[illegible]*Thomas*[illegible]10 000[illegible]10 000[illegible]20[illegible]“[illegible]”[illegible]

[illegible]A[illegible]B[illegible]“DIY”[illegible]1/4[illegible]——[illegible]10[illegible]

[illegible]

[illegible]·[illegible]29[illegible]18[illegible]“[illegible]”[illegible]

[illegible] 1

[illegible]

图表 1 CHART

富足金字塔

健康
自由
能源
信息通信技术
教育
食物
水
住所

图表2 CHART

世界人口增长趋势和技术发展史

第一次农业革命
制陶术
犁的发明
最早的灌溉系统
最早的城市
冶金术
书写
数学
希腊的鼎盛
罗马的鼎盛
第二次农业革命
工业革命
飞机的发明
高速计算机
人类登陆月球
基因组项目
互联网
个人电脑
原子能
DNA的发现
盘尼西林
汽车
电话
微生物理论
铁路
瓦特蒸汽机

人口（亿）
0 10 20 30 40 50 60

年度
-9 000 -6 000 -4 000 -3 000 -2 000 0 1 000 2 000

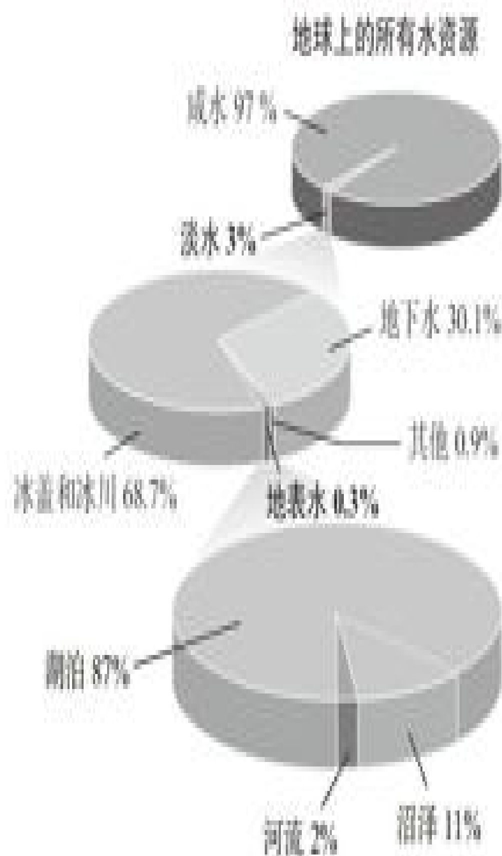
[illegible]

[illegible]Robert Fogel, University of Chicago.

[illegible]

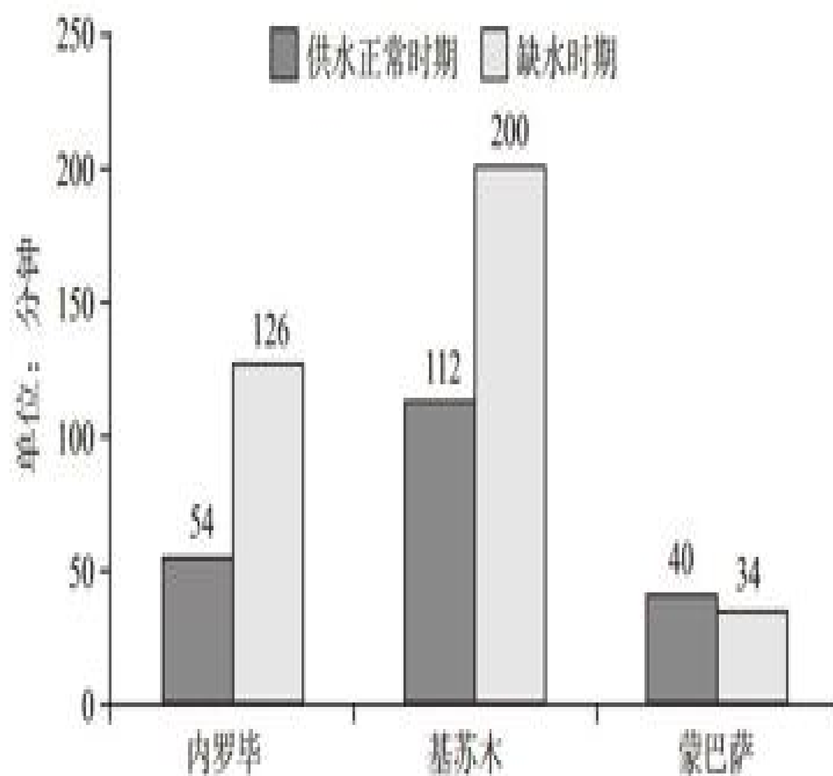
图表 3 CHART

水资源在地球上的分布状况



□□□□□□□□□□□□□□□□□□□□1%□□□□□□□97%□□□2%□□□□□□□□□

□□□□World Fresh Water Resources via USGS.



[illegible]15%[illegible]45%[illegible]1[illegible]4~6[illegible]1[illegible]54[illegible]126[illegible]

[illegible]Citizen Report Card, 2007; www.twaweza.org/uploads/files/Its%20our%20wat-er%20too_English.pdf.

图表 5 CHART 非洲最大的15个城市的供水服务的平均价格（按服务类别统计）

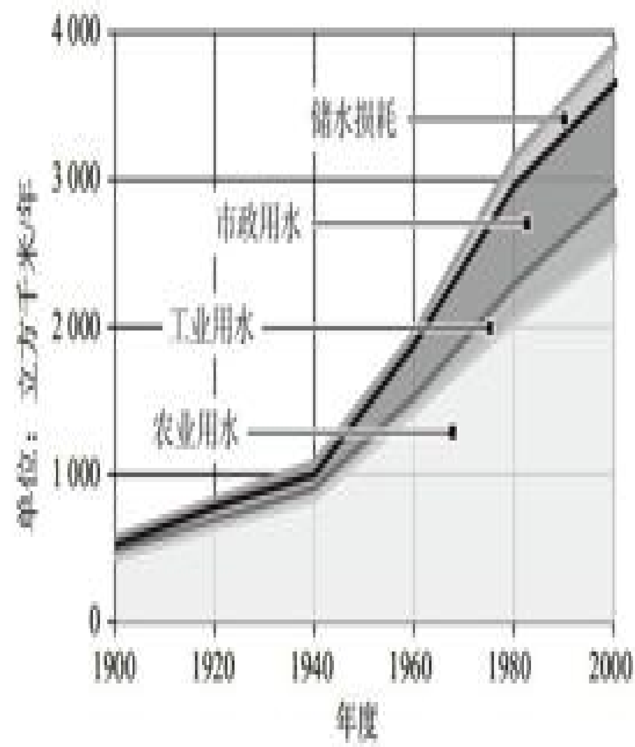
	室内自来水管道供水	小型管网供水	消防龙头供水	家庭分销商供水	水罐消防车供水	饮用水出售器供水
平均价格（美元/立方米）	0.49	1.04	1.93	1.63	4.67	4.00
与室内自来水管道供水价格之比（%）	100	214	336	402	1 103	811

[illegible]200%~1 100%[illegible] 15 [illegible]

[illegible]Keener, Luengo, and Banerjee 2009;www.infrastructureafrica.org/system/files/Africa%27s%20Water%20and%20Sanitation%20Infrastructure.pdf.

图表 6 CHART

1900 年以来全世界每年消耗的水资源（估计值）



□□□□□http://blogs.princeton.edu/chm333/f2006/water/2006/11/how_does_ water_ use_in_ developing_countries_differ.html.



各种产品的虚拟水足迹（2007年）

产品	虚拟水足迹（升）
•1张A4纸（80克/平方米）	10
•1个番茄（70克）	13
•1个土豆（100克）	25
•1只微芯片（2克）	32
•1杯茶（250毫升）	35
•1片面包片（30克）	40
•1个橘子（100克）	50
•1个苹果（100克）	70
•1杯啤酒（250毫升）	75
•1片面包片（30克）涂乳酪（10克）	90
•1杯酒（125毫升）	120
•1个鸡蛋（40克）	135
•1杯咖啡（125毫升）	140
•1杯橙汁（200毫升）	170
•1袋油炸薯片（200克）	185
•1杯苹果汁（200毫升）	190
•1杯牛奶（200毫升）	200
•1件纯棉T恤衫（250克）	2 000
•1个汉堡包（150克）	2 400
•1双鞋（用牛皮制成）	8 000

□□□□□http://www.waterfootprint.org/Reports/Hoekstra_and_Chapagain_2007.pdf.

图表 8

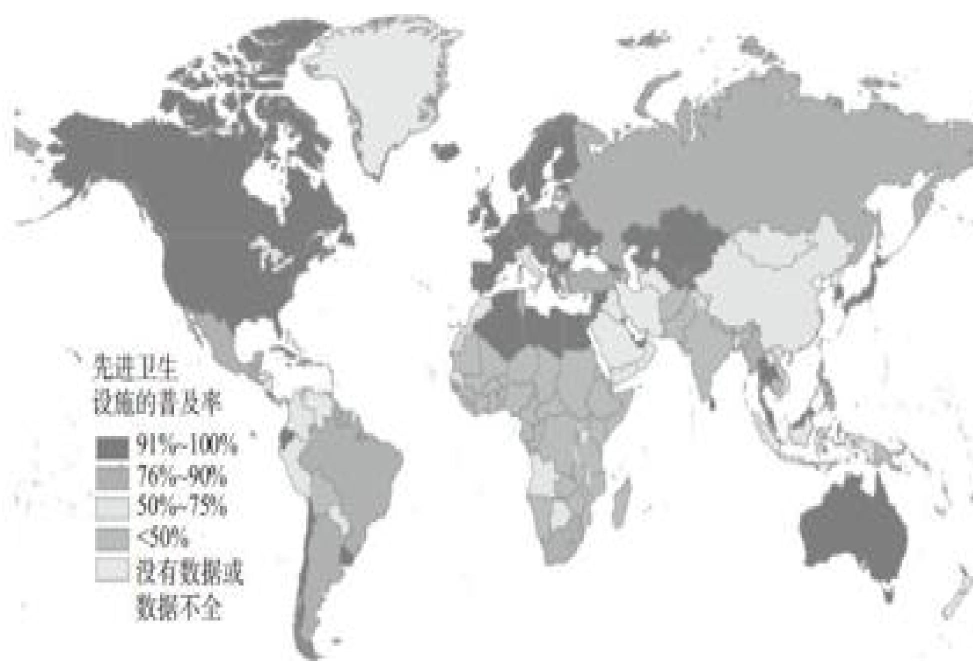
因水资源匮乏和卫生条件恶劣而导致的损失

问题	具体情况
儿童死亡人数	每天都有 4 900 名儿童死于腹泻，每年死于腹泻的儿童高达 180 万名——这相当于伦敦和纽约的所有 5 岁以下人口的总和。不洁净的饮用水和恶劣的卫生条件是全世界第二大“儿童杀手”。2004 年因腹泻而死亡的儿童人数比 20 世纪 90 年代平均每年因武装冲突而死亡的儿童人数多出 6 倍。
损失的学习日	每年，与水有关的疾病致使全球损失了 4.43 亿个学习日。
整体健康水平	在发展中国家，接近一半的人因为饮用水不清洁和卫生条件差而出现了各种各样的健康问题。
损失的时间	数以百万计的妇女每天都不得不花上好几个小时的时间去取水。
丧失的机会	数以百万计的人“输在了起跑线上”，他们在成长过程中因为患病和其他原因而无法接受教育，成年后又陷入了长期的贫困。
经济影响	最贫穷的那些国家，经济方面受到的影响最大。撒哈拉以南的非洲地区每年的损失高达 GDP 的 5% 以上，或者说达 284 亿美元之巨，这个数字超过了 2003 年这个地区所有国际援助和债务减免之和。如果仅仅看经济损失总量，那么就会掩盖如下这个关键的问题：绝大部分损失都是由生活在贫困线以下的贫困家庭承担的，这严重阻碍了他们摆脱贫困的进程。

□□□□□http://hdr.undp.org/en/media/HDR06-complete.pdf.

图表 9 CHART

非洲和亚洲地区先进卫生设施的普及情况（2008年）



[illegible]2/3[illegible]12[illegible]

[illegible]http://www.unicef.org/wash/files/JMP_report_2010.pdf and http://is662ict4sd14.blogspot.com.

图表10 CHART

非洲的卫生设施覆盖率

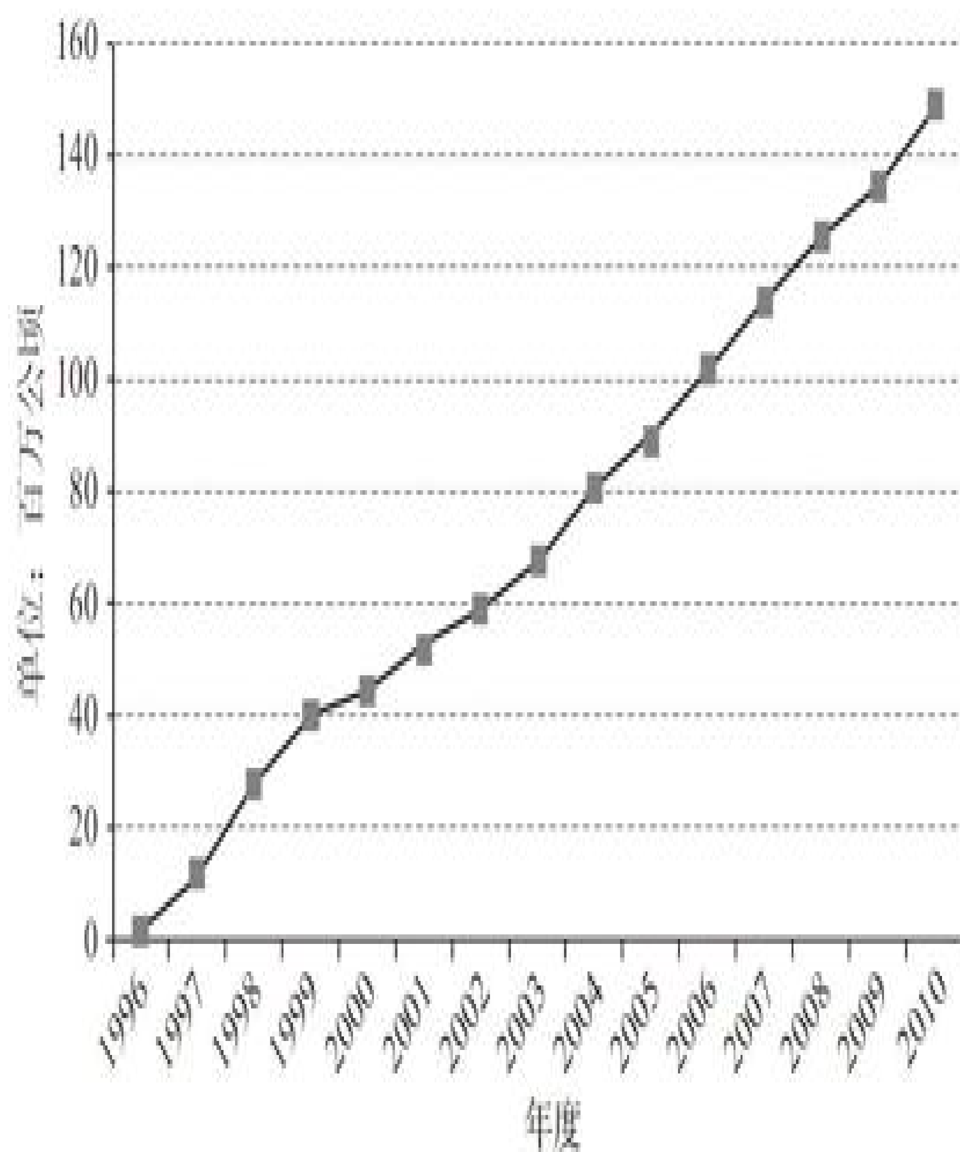
单位：%

	1990	2000	2008
人口总数	517 618 000	674 693 000	822 436 000
城市人口占总人口比例	28	33	37
城市			
先进的卫生设施	43	43	44
共用的卫生设施	29	30	31
落后的卫生设施	17	17	17
农村			
先进的卫生设施	21	23	24
共用的卫生设施	10	11	13
落后的卫生设施	22	23	25
露天粪坑排便或随地排泄	47	43	38
城市与农村合计			
先进的卫生设施	28	29	31
共用的卫生设施	16	18	20
落后的卫生设施	20	21	22
露天粪坑排便或随地排泄	36	32	27

□□□□□http://www.unhabitat.org/pmss/getElectronicVersion.aspx? nr=3074&alt=1; compilation from WHO/UNICEF (2010) Progress on Water and Sanitation: 2010.



1996—2010年转基因作物全球种植面积

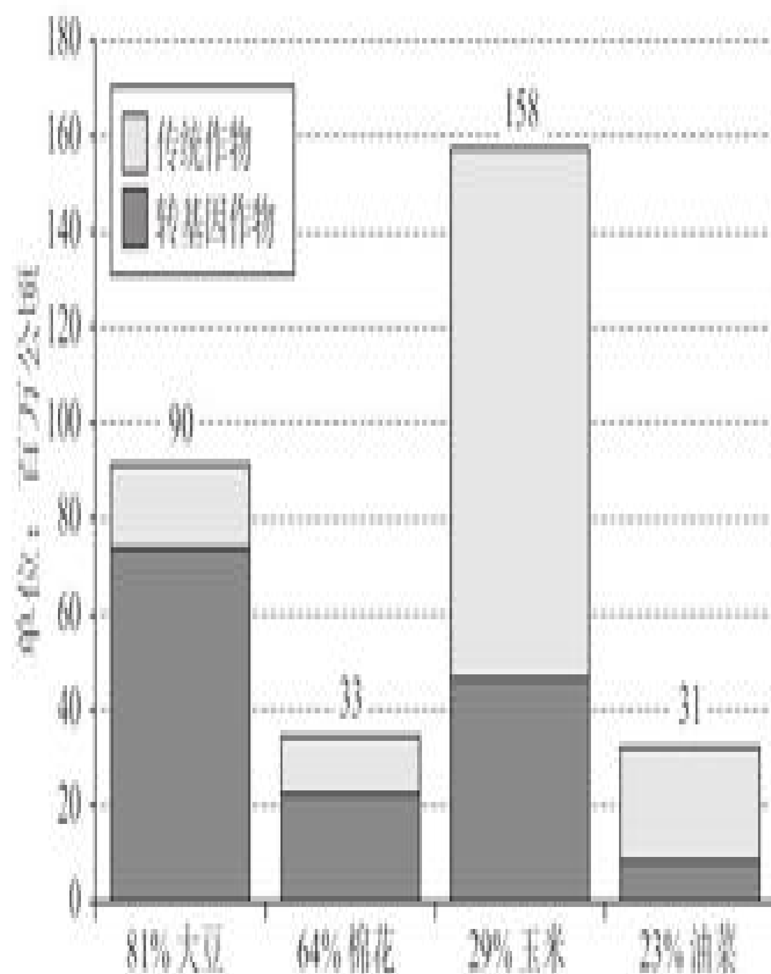


2010□□□□□□□□□□□□□□□□□□112□□□□□□□□□□□□□518□□□□□□□□□□□□□□□□□□22%□340□□□□□□□□□□□□□□□□33%□□□□□□□112□□□□□□□□□□□□□□□□□□□□□□□□89□□□□□□□□□80%□□□□□□□□□23 □□□□□□□□20%□□

□□□□□Clive James, 2010;
http://www.isaaa.org/resources/publications/pocketk/16/default.asp.

图表12 CHART

2008年全球主要农作物中转基因作物的种植面积及其所占百分比



[illegible]2012[illegible]2013[illegible]Bt[illegible]2015[illegible]10[illegible]

□□□□□http://www.isaaa.org/resources/publications/pocketk/16/default.asp.



发展中国家、发达国家肉类和牛奶消费的历史情况及未来趋势

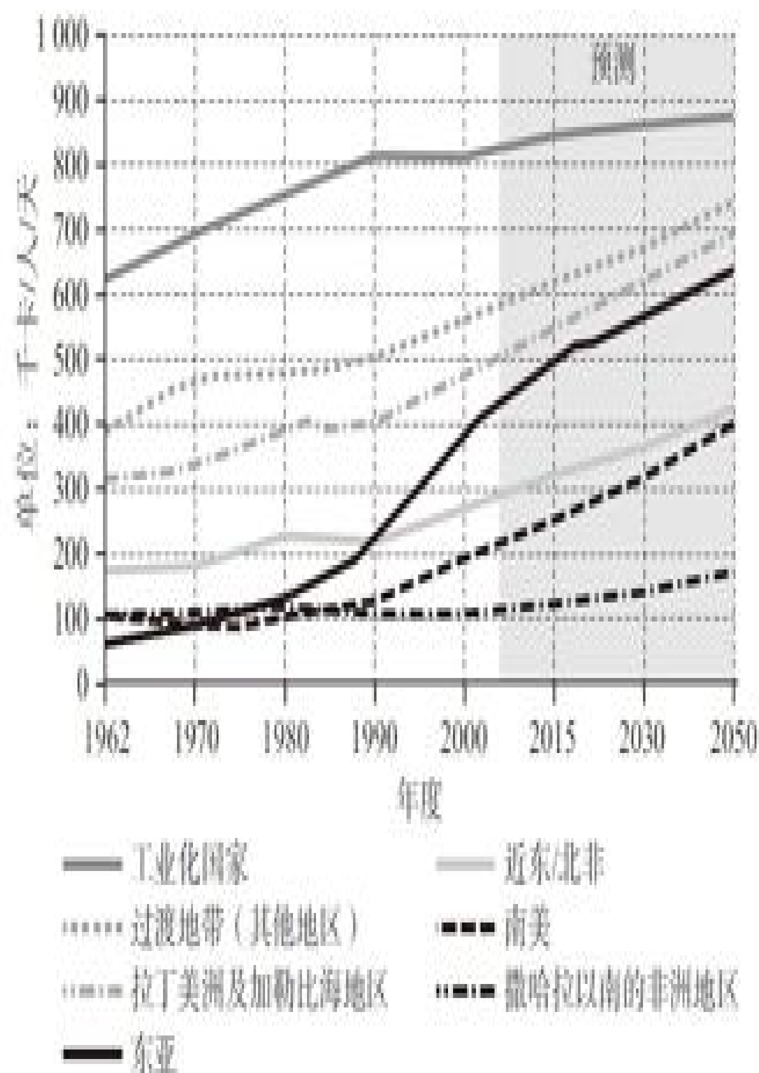
发展中国家					
	1980	1990	2002	2015	2030
食物需求					
年人均肉类消费量（千克）	14	18	28	32	37
年人均牛奶消费量（千克）	34	38	46	55	66
肉类总消费量（百万吨）	47	73	137	184	252
牛奶总消费量（百万吨）	114	152	222	323	452

发达国家					
	1980	1990	2002	2015	2030
食物需求					
年人均肉类消费量(千克)	73	80	78	83	89
年人均牛奶消费量(千克)	195	200	202	203	209
肉类总消费量(百万吨)	86	100	102	112	121
牛奶总消费量(百万吨)	228	251	265	273	284

[illegible]

[illegible]FAO 2006, "Livestock's Long Shadows: Environmental Issues and Options"; ftp://ftp.fao.org/docrep/fao/010/a0701e/a0701e.pdf.

CHART 图表14 禽畜类食品消费的过去情况和未来预测（1960—2050年）



FAO 2006, "Livestock's Long Shadows: Environmental Issues and Options"; ftp://ftp.fao.org/docrep/fao/010/a0701e/a0701e.pdf.

图表15 CHART 全世界各国各地区的家庭食物支出

[illegible]7%[illegible]

□□□□□http://civileats.2011/03/29/mapping-global-food-spending-infographic/data;http://www.ers.usda.gov/briefing/cpifoodandexpenditures/Data/Table_97/2009 table97.htm.

图表16 CHART

全世界所有发展中国家营养不良的人占总人口的百分比（1969—2010年）

%

35, 30, 25, 20, 15, 10, 5, 0

1969—1971
1979—1981
1990—1992
1995—1997
2000—2002
2005—2007
2008
2009
2010

□1969□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□50%□□□

□□□□□http://www.fao.org/docrep/013/i1683e/i1683e00.htm.

图表17 CHART

全世界各地区营养不良的人占总人口的百分比

发达国家：0.19亿

近东和北非：0.37亿

拉丁美洲和加勒比海地区：0.53亿

撒哈拉以南的非洲地区：2.39亿

总数：9.25亿

亚太地区：5.78亿

□□□□□□□□9.25□□□□□□□□□□□□□□□□□□□□1/7□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□http://www.fao.org/docrep/012/al390e/al390e00.pdf
http://www.wfp.org/hunger.

图表18 CHART

与营养相关的各种致病风险因素所导致的负担

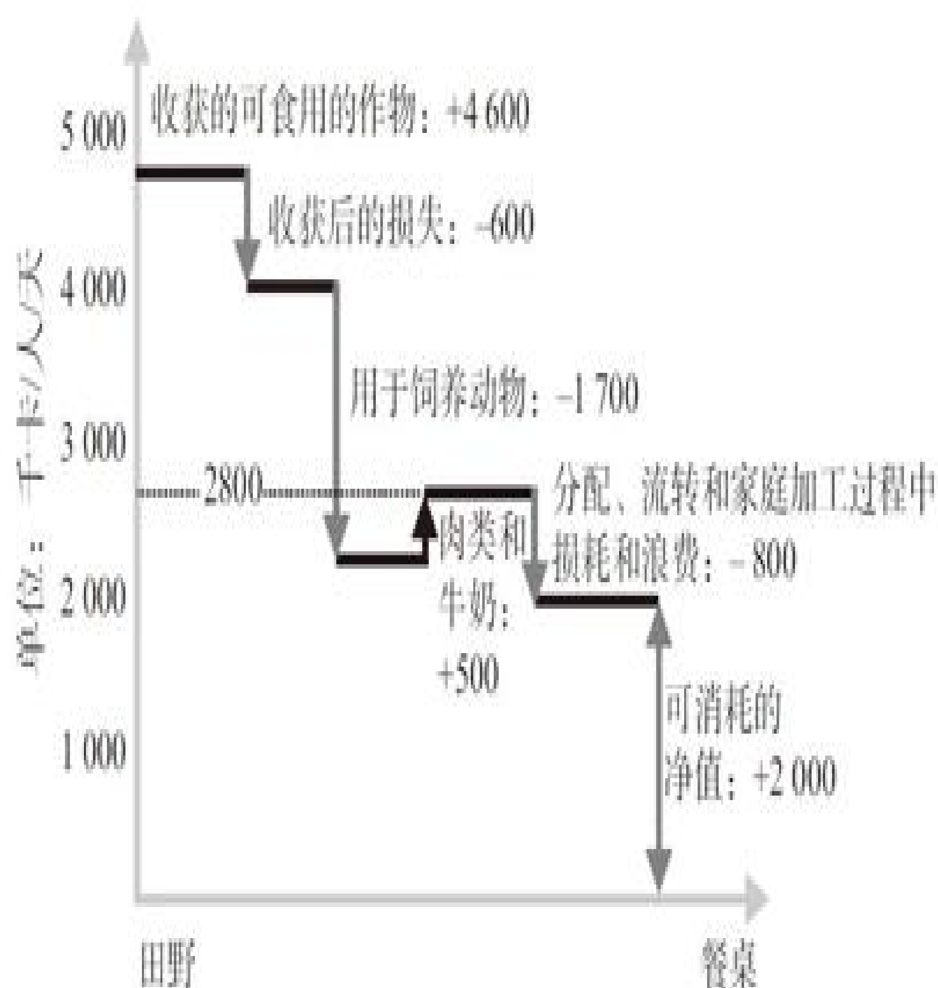
人口/致病风险因素	非洲	美洲	欧洲	中东和地中海地区	东南亚	西太平洋	全世界
总人口（亿）	6.4	8.3	4.8	8.7	15.4	16.9	60.5
按残疾调整生命年（DALYs）计算占总人口的百分比							
与儿童和孕产妇的营养不良有关的疾病							
体重过轻	9.82	0.24	3.58	0.09	3.06	0.48	2.28
铁缺乏症	1.59	0.24	0.77	0.12	0.91	0.26	0.58
维生素A缺乏症	2.57	0.04	0.61	0	0.42	0.03	0.44
锌缺乏症	2.15	0.06	0.67	0.01	0.35	0.03	0.46
疟疾							0.74
艾滋病							1.49
呼吸道感染							1.67
碘缺乏病							0.04
麻疹							0.4
腹泻							1.19
其他与营养相关的风险因素							
高血压	0.69	0.78	1.02	2.22	0.98	0.83	1.06
高胆固醇	0.31	0.55	0.67	1.51	0.8	0.31	0.67
体重过高	0.23	0.89	0.6	1.35	0.27	0.35	0.55
水果和蔬菜摄入量过低	0.24	0.36	0.34	0.76	0.57	0.3	0.44
糖尿病							0.25

[illegible]“[illegible]”[illegible]

[illegible]http://www.millenniumassessment.org/documents/document.277.aspx.pdf; adapted from Ezzati et al. 2002; Ollila n.d. ; and WHO 2002a.



食物中的能量损失（从田野到餐桌）



[illegible]

图表20 CHART

食物中的能量损失（从田野到餐桌）

收获的可食用的作物4 600
收获时的损失
收获后4 000
单位：千卡/人/天
用于饲养动物
肉类和牛奶2 800
分配、流转中的损耗和浪费
消费掉的食物2 000
千卡
4 000
3 000
2 000
1 000
0

[illegible]50%[illegible]

http://maps.grida.no/go/graphic/losses-in-the-food-chain-from-field-to-household-consumption.

图表21 CHART 垂直农场

太阳能电池板

能源由一块能够随着太阳旋转的太阳能面板提供，用于垂直农场内部的降温或取暖。

玻璃面板

有二氧化钛的透明涂层，能够收集污染物，并可以让雨水顺畅地沿着玻璃流下，收集起来用于灌溉。

建筑结构

圆形设计保证了最大的采光率。

经济性

把农场与办公楼和住宅楼集成在一栋大楼内。

灌溉

经污水处理系统过滤、消毒的废水可以用于灌溉。



[illegible]

□□□□□Vertical Farm Project; http://www.the-edison-lightbulb.com/2011/03/09/vertical-farms-the-21st-century-agricultural-revolution.

图表22 CHART

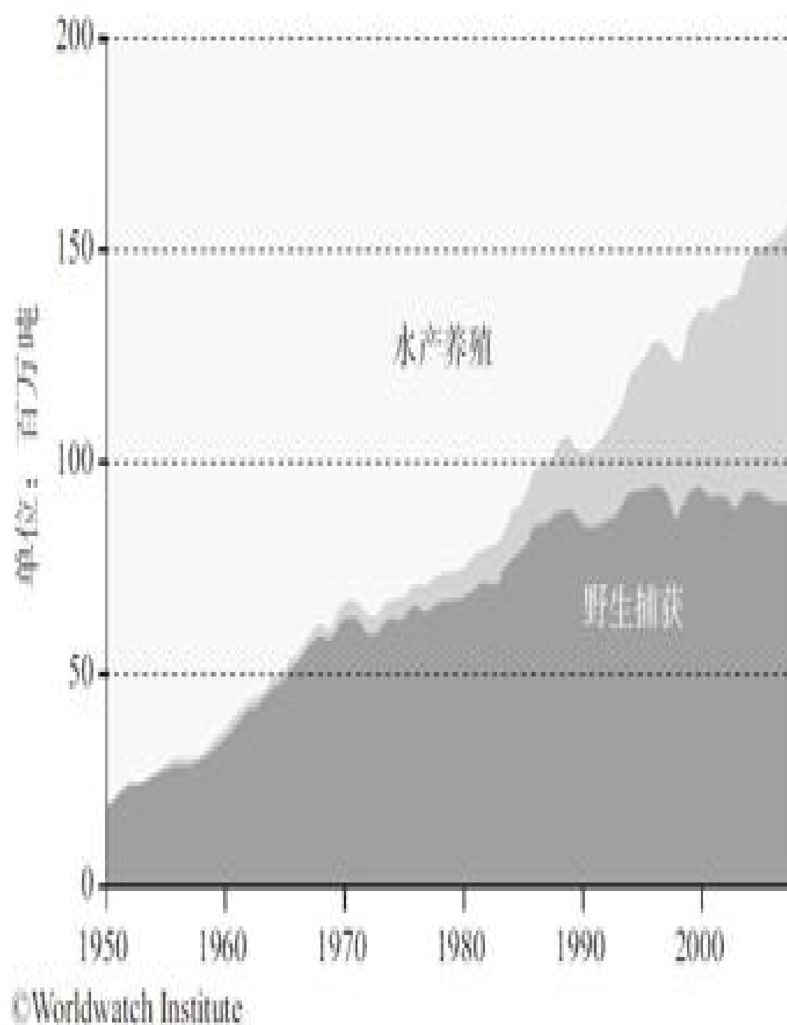
过度捕捞的证据（1950—2003年）

[illegible]

□□□□□http://simondonner.blogspot.com/2008/11/farming-oceans.html.

图表23 CHART

水产养殖提供的食物与野生捕获提供的食物之对比（1950—2008年）



[illegible]1950—2008[illegible]

[illegible]FAO; http://peakwatch.typepad.com/.a/6a00d83452403c69e201538f2305b2970b-pi[illegible]

[illegible]

图表 24 CHART

全球范围内及加入世界卫生组织的国家和地区 5 岁以下的婴幼儿的死亡率（1980—2010 年）

5岁以下的婴幼儿的死亡率（‰）

200
150
100
50
0

1980 1985 1990 1995 2000 2005 2010

非洲 东地中海地区 东南亚 全世界
美洲 欧洲 西太平洋地区

[illegible]5[illegible]50%[illegible]

□□□□□
http://www.who.int/gho/child_health/mortality/mortality_under_five/en/index.html.



导致5岁以下婴幼儿死亡的主要原因

全世界5岁以下婴幼儿死亡的病因		
	死于某个病因的5岁以下的婴幼儿所占的百分比(2002—2003年)	未满5岁就不幸去世的婴幼儿的总数（2006年）
新生儿疾病致死	37	3 600 000
肺炎	19	1 800 000
腹泻	17	1 600 000
其他	10	970 000
疟疾	8	780 000
艾滋病	3	290 000
麻疹	4	390 000
外伤	3	290 000
合计	100	9 700 000

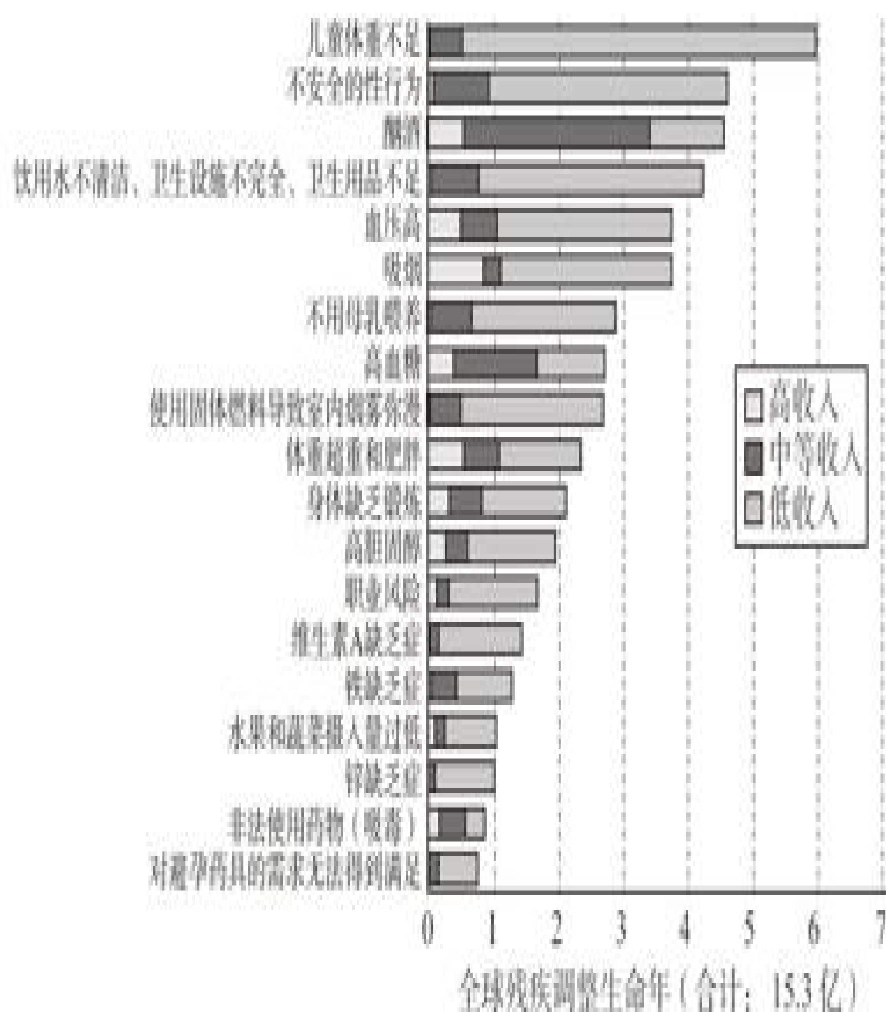
注释：

a. 合计不一定为100%，这是因为计算时四舍五入的缘故。

b. 新生儿疾病致死指婴儿出生后28天内因各种原因去世，包括：早产、严重感染、生产时窒息、先天性器官畸形、新生儿破伤风、腹泻类疾病和其他导致新生儿死亡的原因。

□□□□□
http://www.unicef.org/media/files/Under_five_deaths_by_cause_2006_estimates3.doc. 53% from World Health Organization, The World Health Report 2005: Make Every Mother and Child Count, WHO, Geneva, 2005.

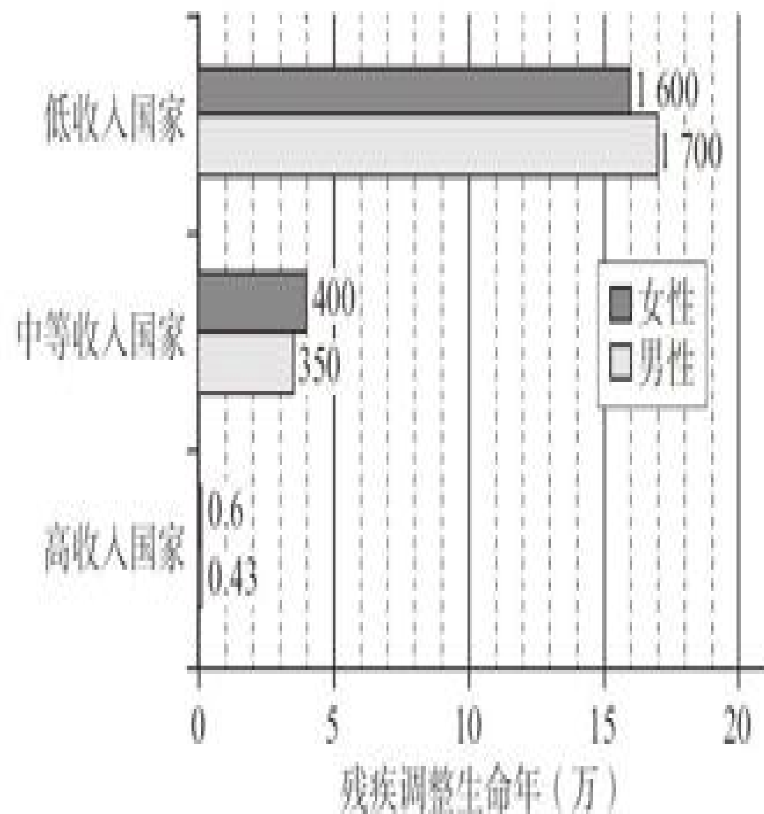
图表26 CHART 残疾调整生命年（DALYs）的百分比（按2004年收入水平分组）



WHO, 2009. Global health risks.

图表 27 CHART

健康水平与室内空气污染的关系



[illegible]2004[illegible]200[illegible]2.7%[illegible]“[illegible]”[illegible] 200 [illegible]

[illegible]http://www.who.int/indoorair/health_impacts/burden_global/en.

图表 28
CHART

健康水平与和水有关的疾病的关系（1999年）

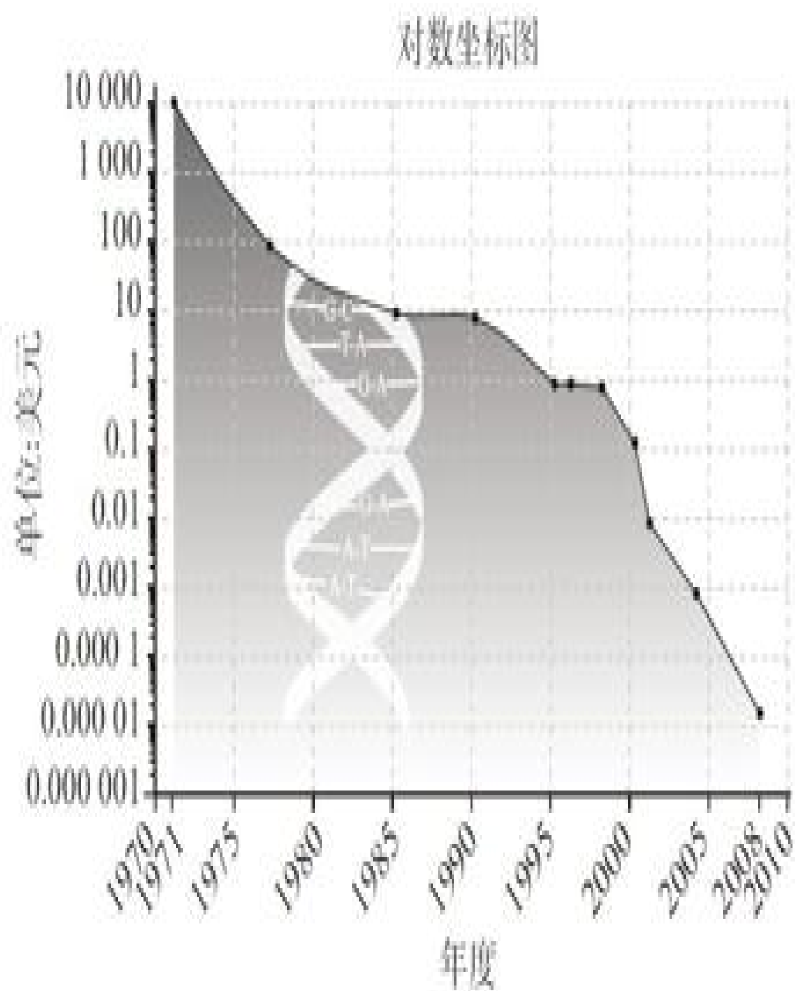
疾病	死亡人数（X1 000）	残疾调整生命年（X1 000）
血吸虫病	14	1 932
沙眼	0	1 239
蛔虫病	3	505
鞭虫病	2	481
钩虫病	7	1 699
合计	26	5 856

[illegible]1999[illegible]1 000[illegible]1/10[illegible]i[illegible]ii[illegible]iii[illegible]140[illegible]50[illegible]86[illegible]500[illegible]500[illegible]

[illegible]http://ehp.niehs.nih.gov/realfiles/members/2002/110p537-542pruss/pruss-full.html; http://www.who.int/features/qa/70/en/index.html.

图表29 CHART

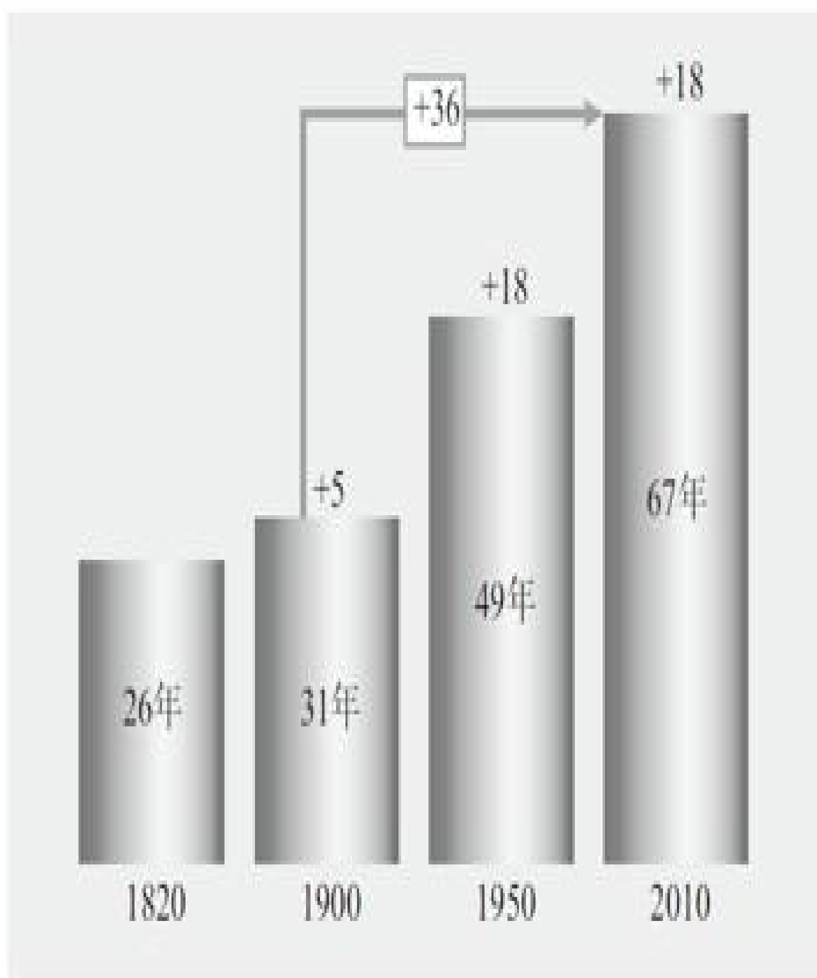
DNA测序成本呈指数型下降



□□□□□Kurzweil, The Singularity Is Near.

图表30 CHART

全世界预期平均寿命的增长情况



190

United Nations Development Program.

CHART 图表31

美国2009年的能源来源和用途（能源需求）

（万亿英国热量单位及百分比）

2009年的总量为96.6万亿英国热量单位

能源来源

占比

石油
35.3 (37%)

天然气
23.4 (25%)

煤炭
19.7 (21%)

可再生能源
7.7 (8%)

核电
8.3 (9%)

能源需求

占比

交通
27.0 (28%)

工业
18.8 (20%)

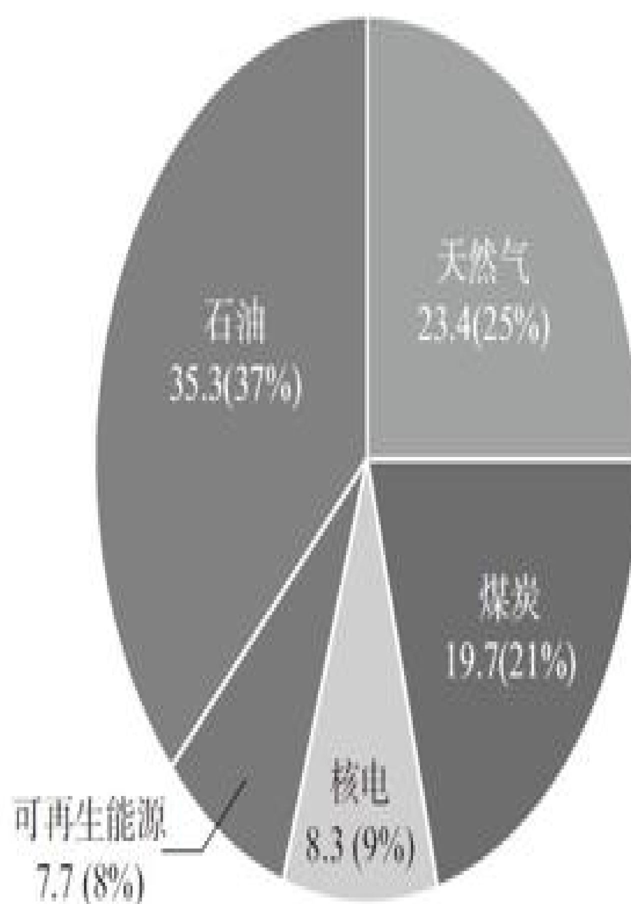
家用和商业
10.6 (11%)

电能
38.3 (41%)

□□□□□http://www.eia.gov/totalenergy/data/annual/pecss_diagram2.cfm.



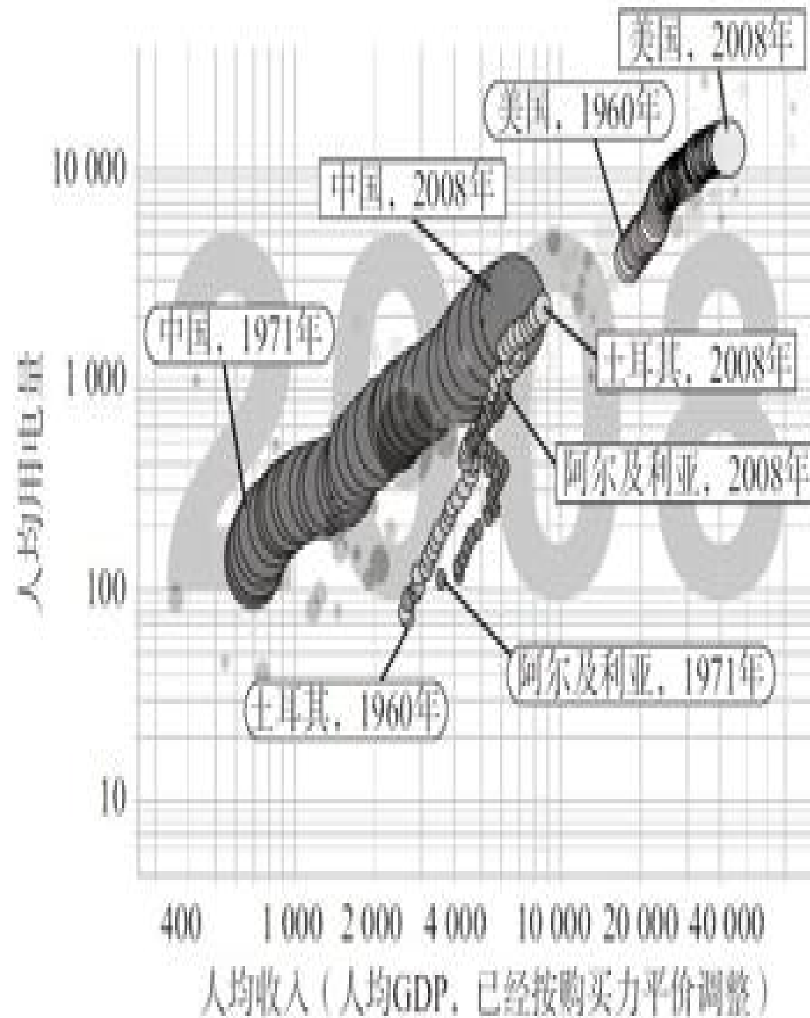
美国能源的来源（2009年）



□□□□□□□2009□□□□□□□□□□□□□□

□□□□□http://www.eia.gov/energy_in_brief/major_energy_sources_and_users.cfm.

图表33 CHART 人均GDP及能源消费（图中每一个点代表一个国家）

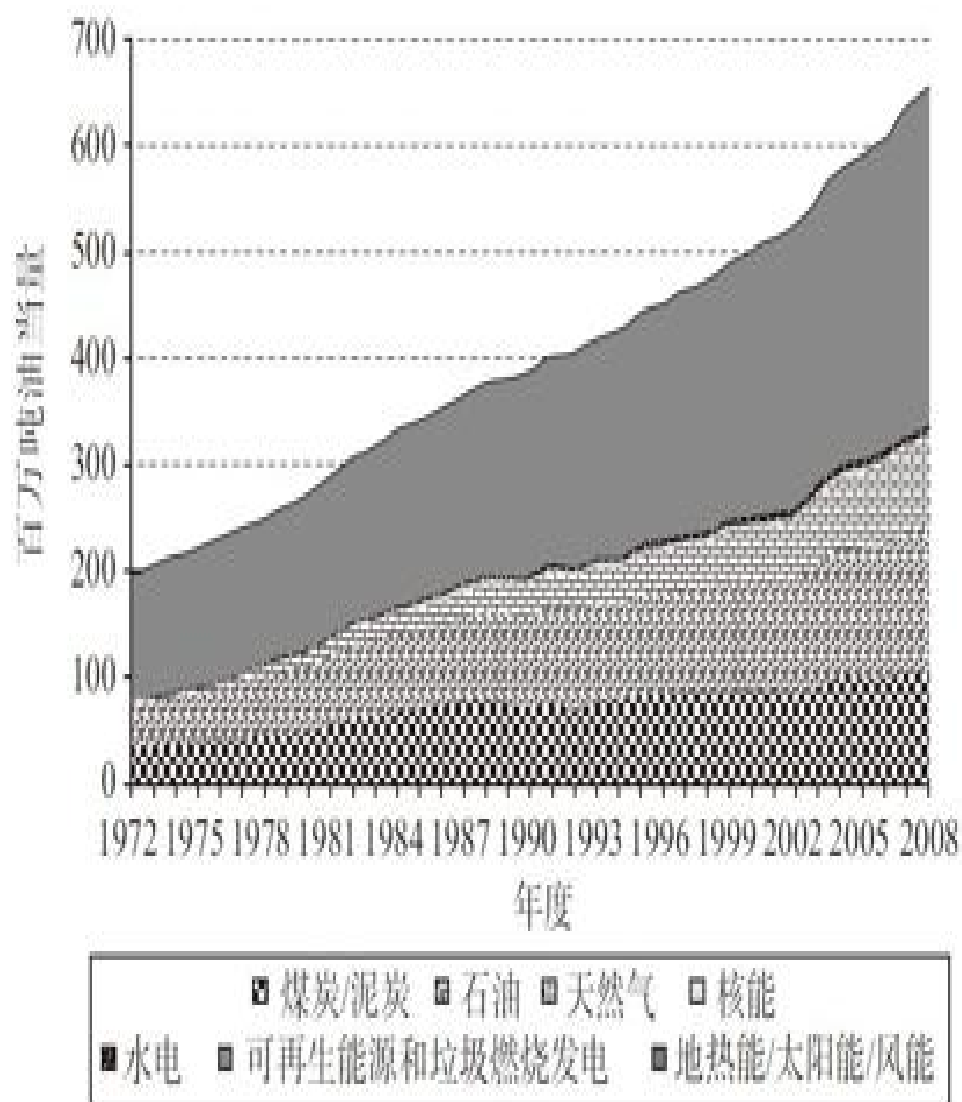


[illegible]GDP[illegible]1960—2008[illegible]1971[illegible]4[illegible]

[illegible]http://www.inference.phy.cam.ac.uk/withouthotair/c30/page_231.shtml.

图表34 CHART

非洲的主要能源构成（2008年）

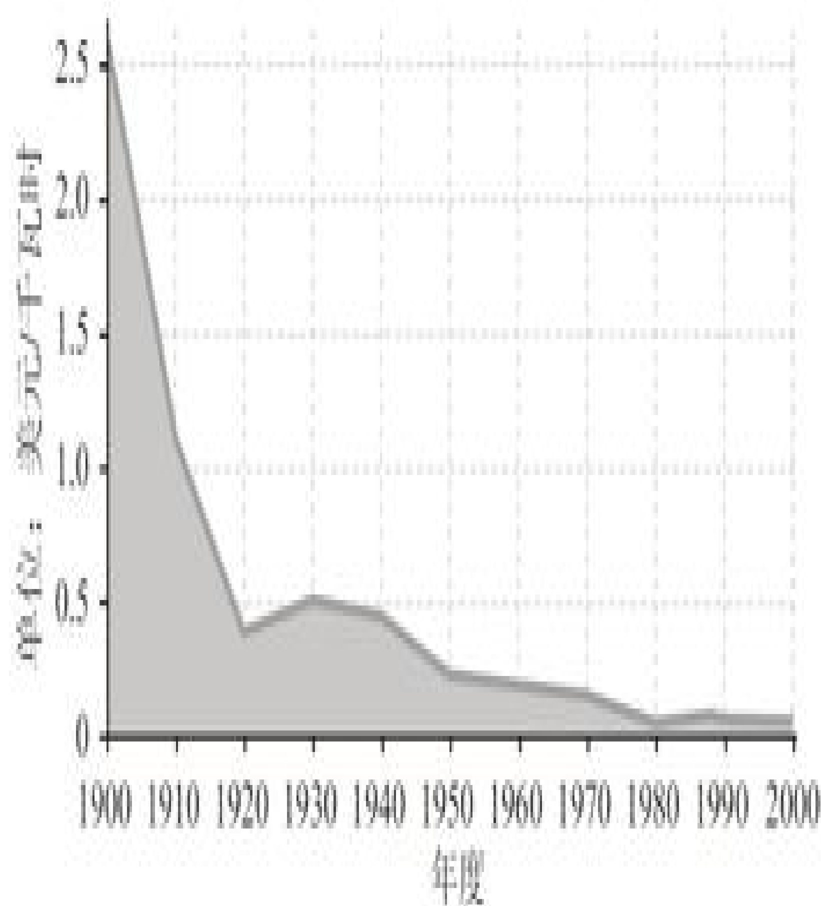


□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□http://www.iea.org/stats/pdf_graphs/11TPES.pdf.

CHART 图表35

美国平均电价的演变（以1990年美元币值计算的每千瓦时价格）



□□□□100□□□□□□□□□□□□□□

□□□□□Bill Gates TED Talk, 2010.

图表 36 CHART

用各种发电方法每发电1亿千瓦时的死亡率

石油

煤炭

核能

死亡率

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□1□□□□□□□□4 000□□

□□□□Seth Godin at http://sethgodin.typepad.com/seths_blog/2011/03/the-triumph -of-coal-marketing.html. Using Brian Wang’s data: http://nextbigfuture.com/2011/03/ deaths-per-twh-by-energy-source.html.

CHART 图表37

能源储存：特定的电源VS特定的能源

特定的电源（瓦/千克）

100 000
10 000
1 000
100
10
1
0.1
0.01

锂电池
传统飞轮
钠硫电池
液流电池
铅酸电池
抽水蓄能电站
（8小时容量）

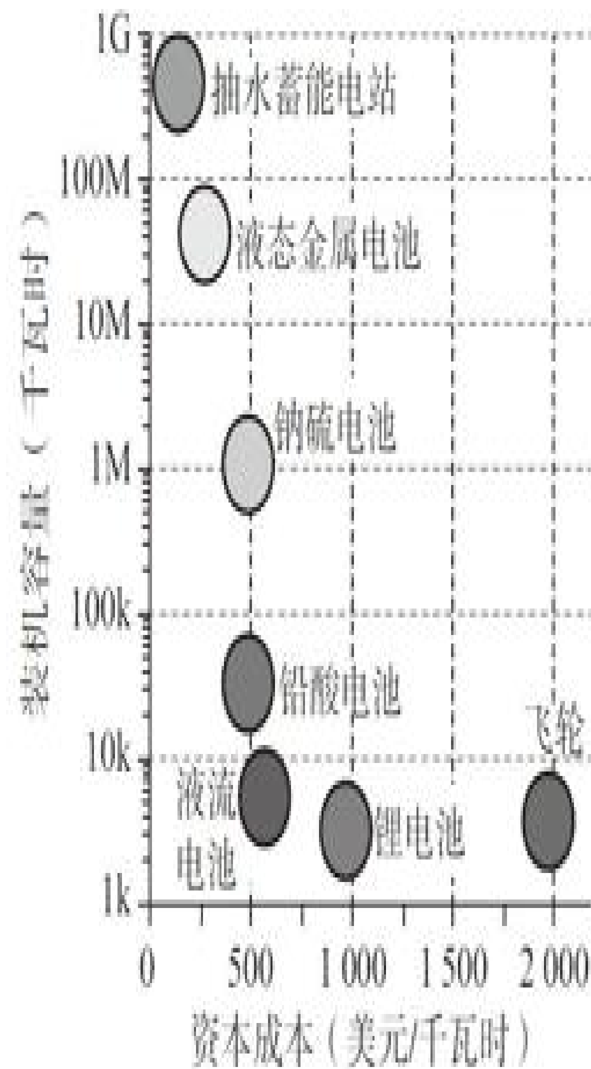
0.1
1
10
100
1 000
10 000

特定的能源（瓦/千克）

Professor Don Sadoway, MIT, LMBC.

图表38
CHART

装机容量VS资本成本

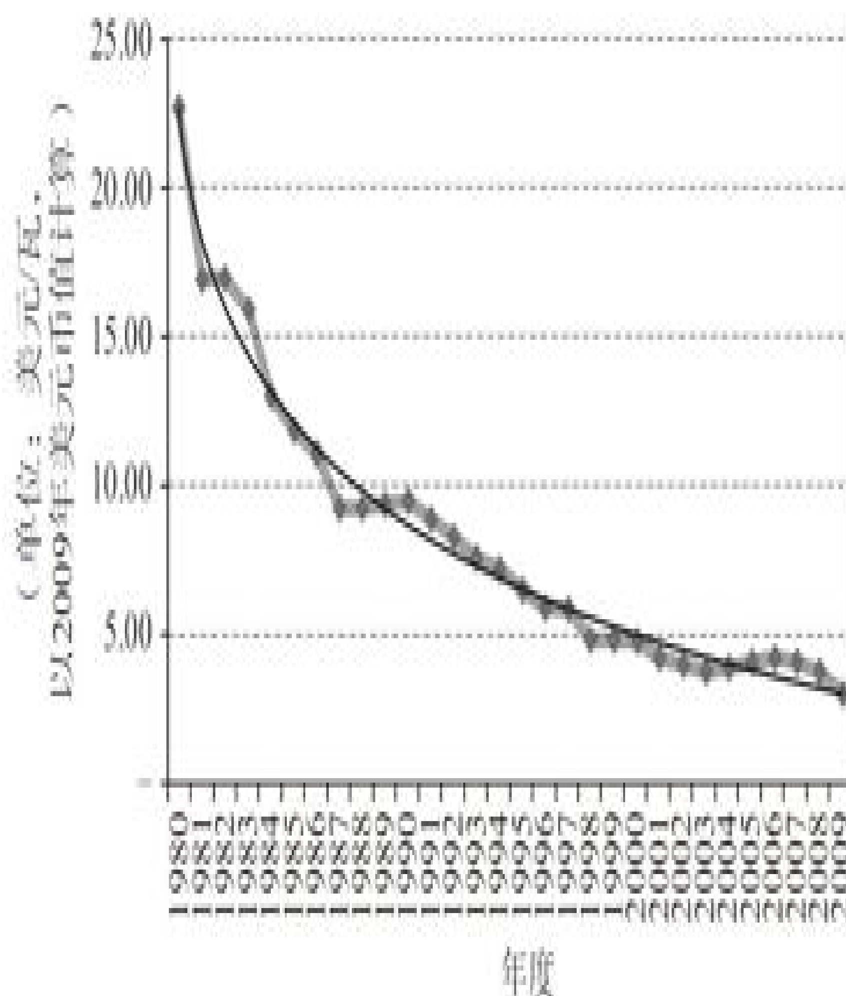


[illegible]·[illegible]i[illegible]150[illegible]/[illegible]ii[illegible]10[illegible]iii[illegible]80%[illegible]

[illegible]Professor Don Sadoway, MIT, LMBC.

图表39 CHART

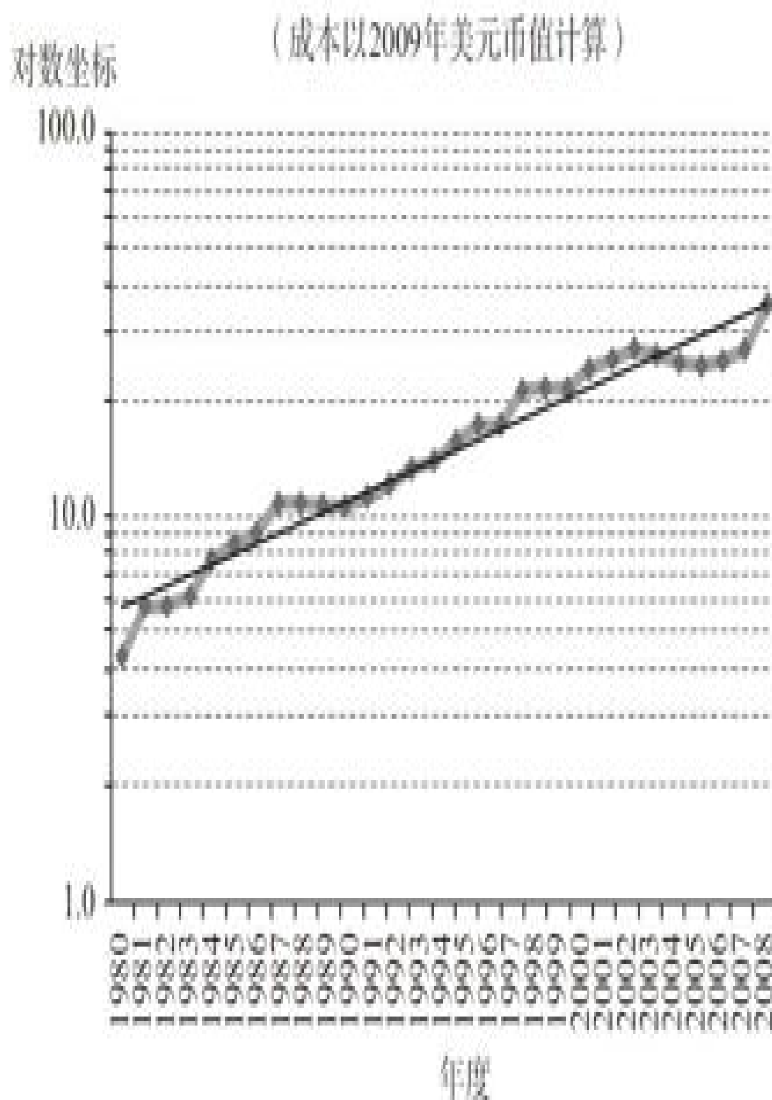
每瓦太阳能光电产品的成本（1980—2009年）



DOE NREL Solar Technologies Market Report, Jan. 2010. Ramez Naam, "The Exponential Gains in Solar Power per Dollar," http://unbridledspeculation.com/2011/03/17/the-exponential-gains-in-solar-power-per-dollar.

CHART 图表40

固定的100美元可生产的电量（1980—2010年）



[illegible]100[illegible]

[illegible]DOE NREL Solar Technologies Market Report, Jan. 2010. Ramez Naam, “The Exponential Gains in Solar Power per Dollar,” http://unbridledspeculation.com/

2011/03/17/the-exponential-gains-in-solar-power-per-dollar.

图表41 CHART 太阳能光电产品成本下降路径（2007—2014年）

[illegible]© 2010 SunPower Corporation.

CHART 图表42

太阳能行业的学习曲线

[illegible]

□□□□□Presentation by Frank van Mierlo, CEO, and Ely Sachs, CTO, of 1366 Technologies. Data is from Greg Nemet at UC Berkeley.

图表43 CHART

全球风能发电装机容量的演变

每年新增装机容量（左侧纵坐标轴）
累计装机容量（右侧纵坐标轴）

每年新增装机容量（千兆瓦）
累计装机容量（千兆瓦）
年度

□□
□□□□□□2009□□□□□□□□□□□□□□□□1.8%□

□□□□□Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN). http://srren.ipcc-wg3.de/report/IPCC_SRREN_Ch07.



各种可再生能源蕴藏的最大功率

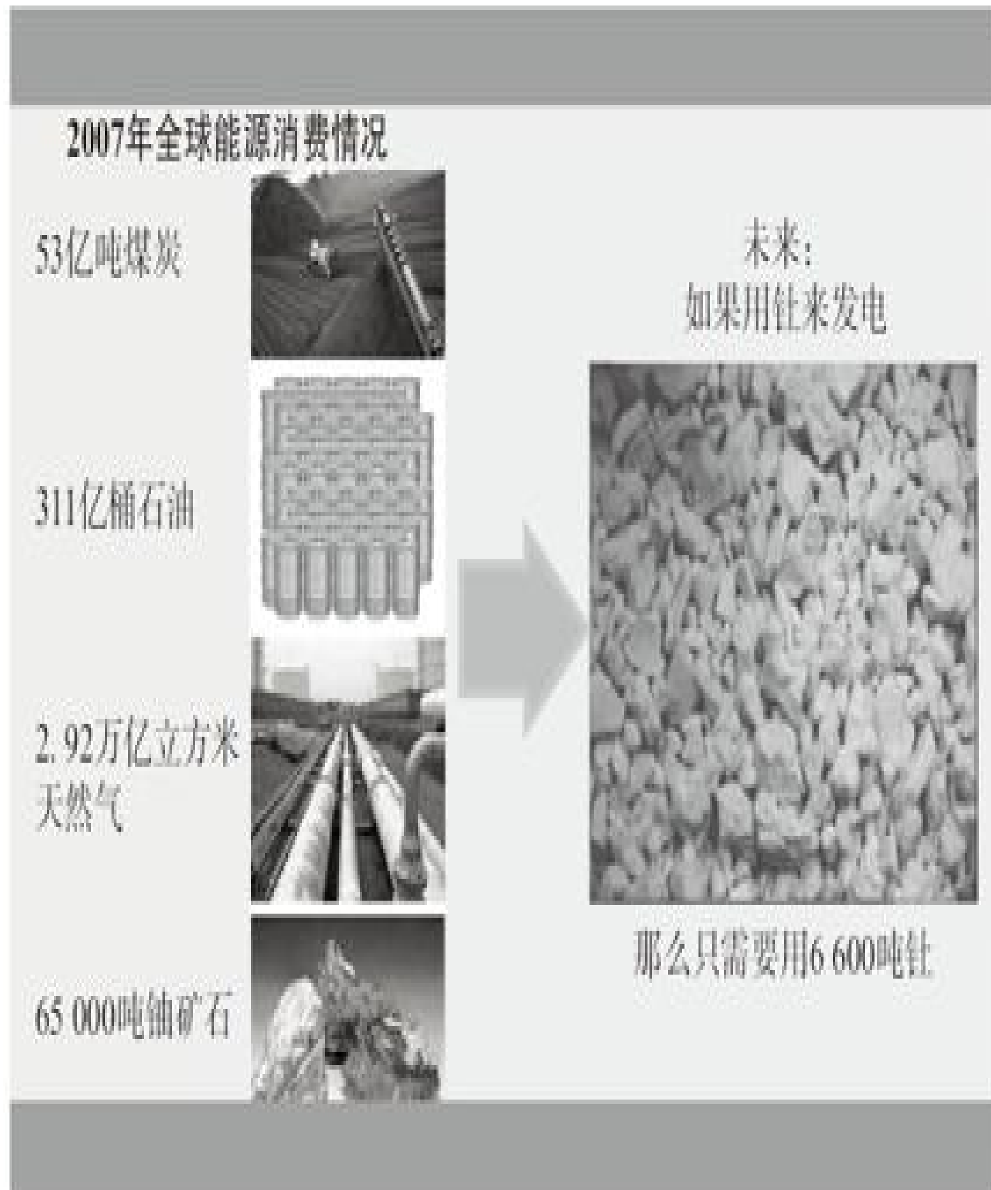
可再生能源类别	最大功率	相当于太阳能的百分比
太阳能	85 000 太瓦	100.000
海洋热能	100 太瓦	0.120
风能	72 太瓦	0.080
地热能	32 太瓦	0.380
河流水能	7 太瓦	0.008
生物质能	6 太瓦	0.008
潮汐能	3 太瓦	0.003
沿海海浪	3 太瓦	0.003

□□□850□□

□□□□□Derek Fellow, IEEE, “Keeping the Energy Debate Clean: How Do We Supply the World’s Energy Needs?” Proceedings of the IEEE 98, no. 1 (January 2010).

图表45 CHART

全球能源消费情况（2007年）

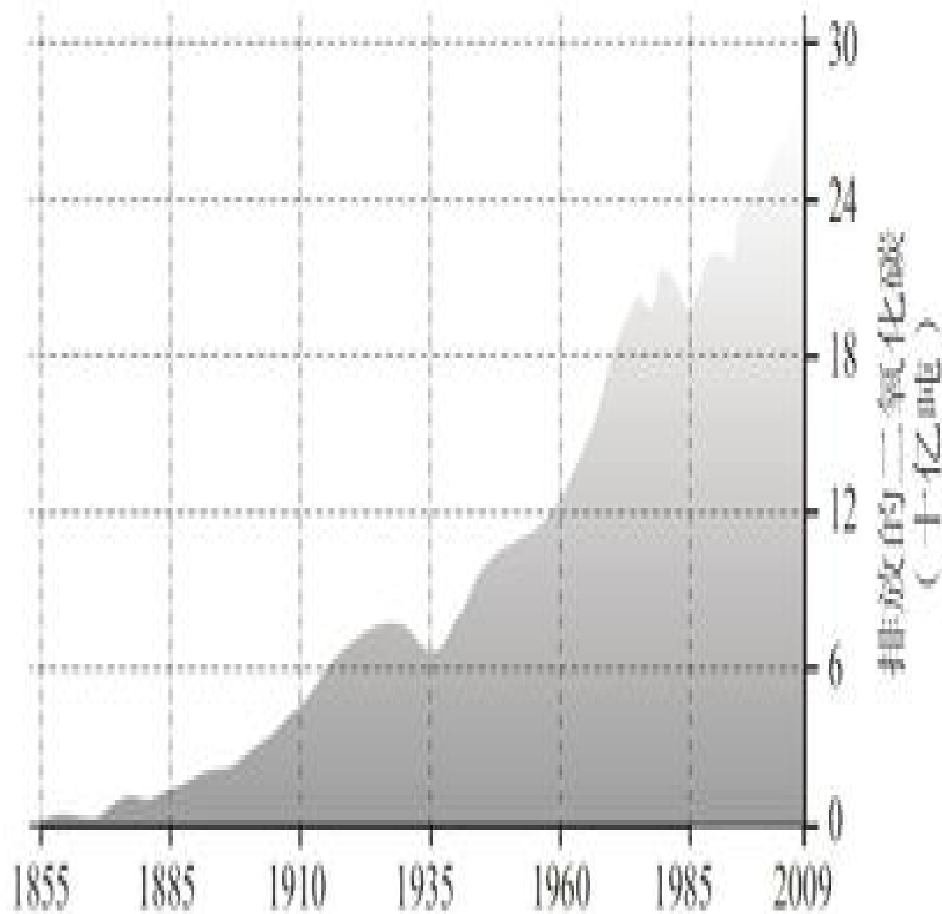


□2007□□□□□□□□□□□□□□6 600□□□□□□□□□□□□□□□□□

□□□□□Bill Gates, TED Talk, 2010.

图表46 CHART

全球能源生产过程中的碳排放



□□□□□□□150□□□□□□□□□□□□□

□□□□□Bill Gates, TED Talk, 2010.

图表47 CHART

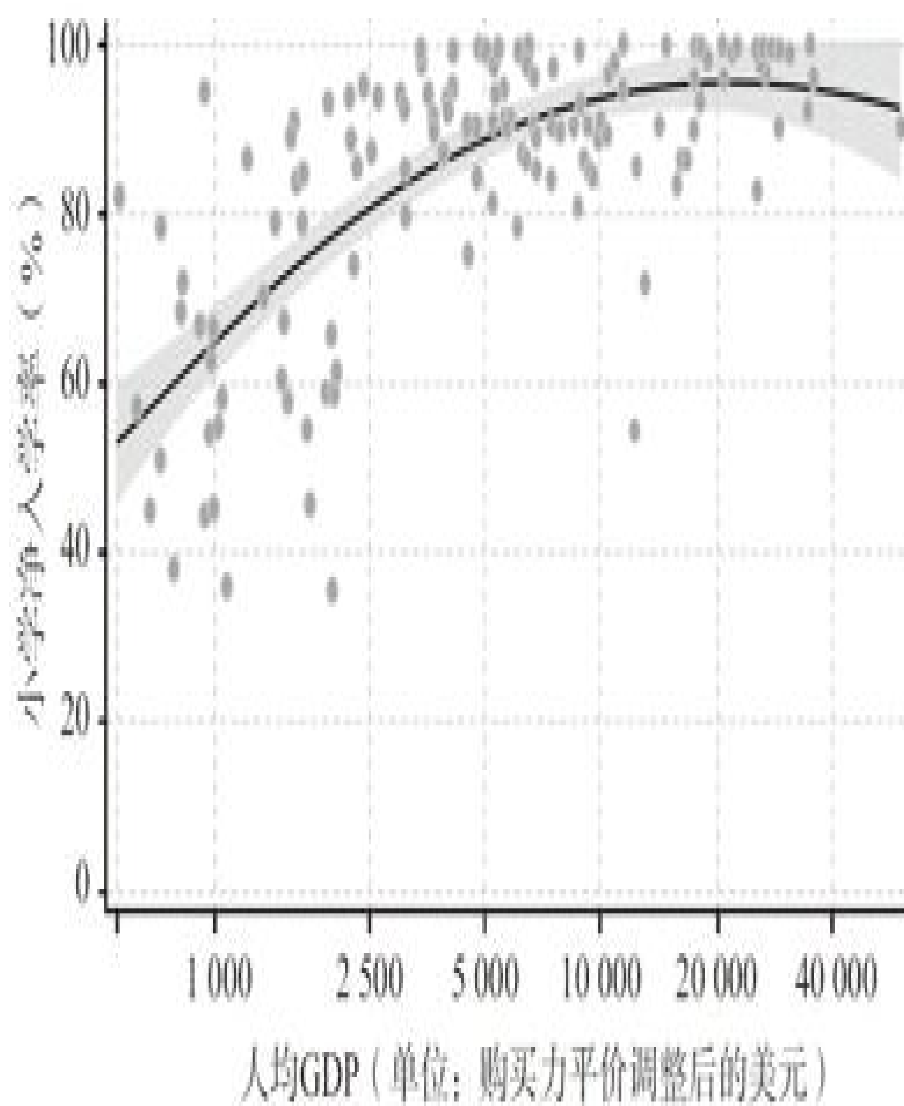
联合国《新千年发展目标》所示的小学适龄儿童人口和失学儿童人数（2007年）

撒哈拉以南的非洲地区
南亚
大洋洲
西亚
发展中国家
拉丁美洲和加勒比海地区
东南亚
北非
独联体国家
东亚
失学儿童人数占适龄儿童总数的百分比（%）
小学适龄儿童人口占总人口的百分比

□□□□□Population structure and children out of school. http://huebler.blogspot.com/2009/02/coos.html.

图表48 CHART

小学净入学率与人均GDP的关系（2002年）



[illegible]GDP[illegible]2 500[illegible]80%[illegible]GDP[illegible]2 500[illegible]80%[illegible]

[illegible]http://huebler.blogspot.com/2005/09/national-wealth-and-school-enrollment.html.

图表49 CHART

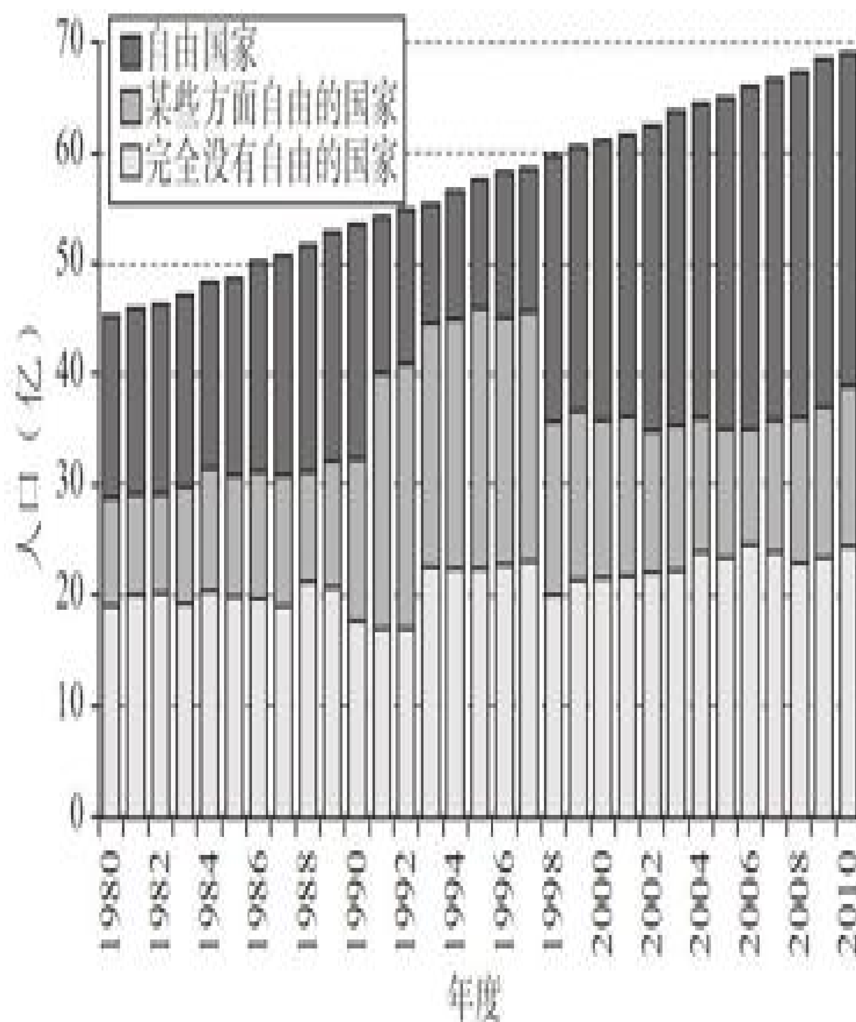
10~12岁的儿童接触高技术的机会

□□□□□http://newsdesk.umd.edu/bigissues/release.cfm?ArticleID=2229; www.popcenter.umd.edu.

□□



全球民主趋势：从人口来看



[illegible]
http://www.freedomhouse.org/images/File/fiw/historical/PopulationTrendsFIW1980–2011.pdf.

[illegible]

图表51 CHART 通过对比看一个真实的非洲

国家	面积（平方千米）	国家	面积（平方千米）
中国	9 597 000	德国	357 000
美国	9 629 000	挪威	324 000
印度	3 287 000	意大利	301 000
墨西哥	1 964 000	新西兰	270 000
秘鲁	1 285 000	英国	243 000
法国	633 000	尼泊尔	147 000
西班牙	506 000	孟加拉	144 000
巴布亚新几内亚	462 000	希腊	132 000
瑞典	441 000	合计	30 102 000
日本	378 000	非洲	30 221 000

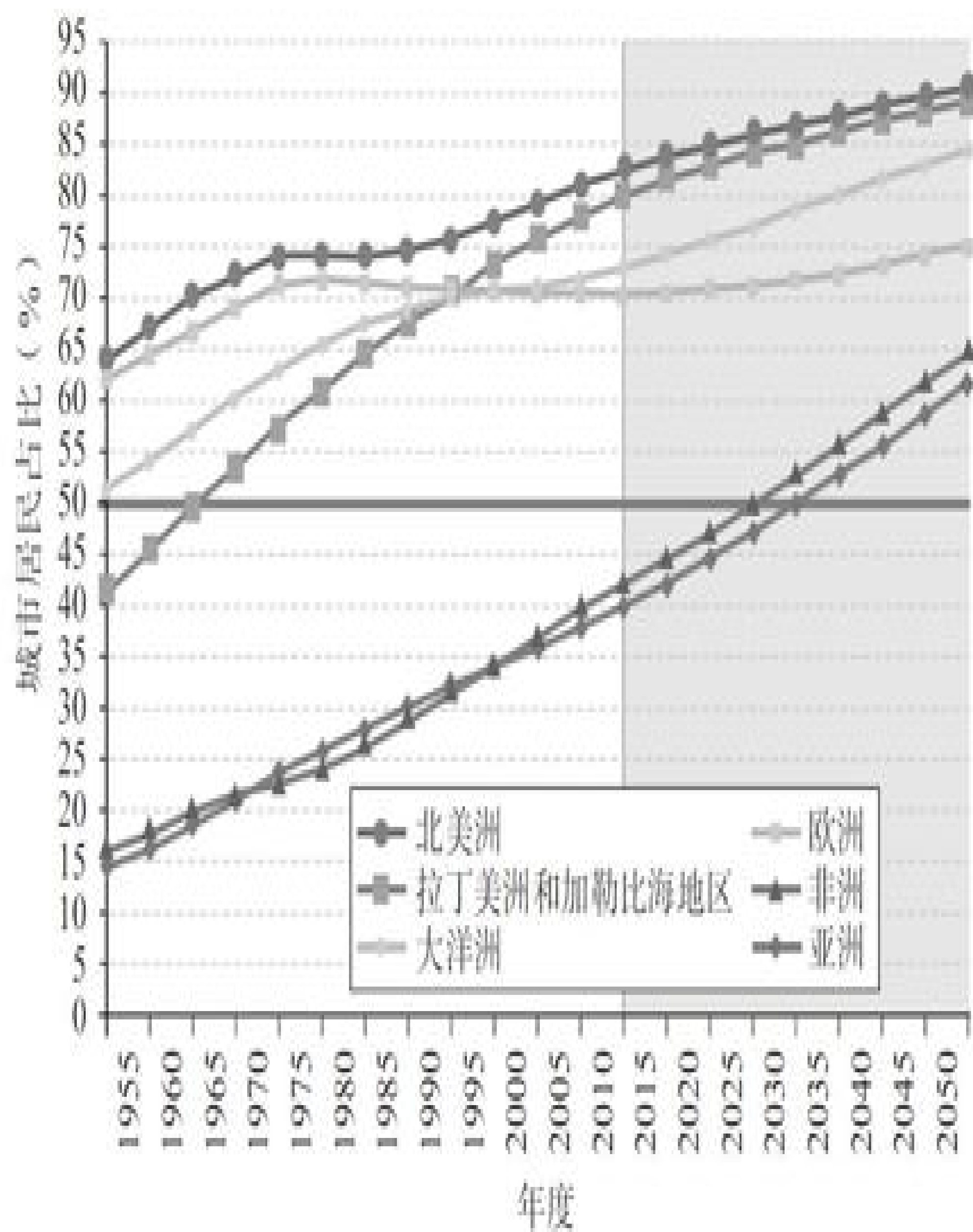
[illegible]

[illegible]

[illegible]Kai Krause, Creative Commons.

CHART 图表52

全球城市化前景



□2050□□□□□70%□□□□□□□□□□

□□□□□http://esa.un.org/unpd/wup/Fig_1.htm.

图表53 CHART 印度、越南和坦桑尼亚三国的城市化指标对比

	印度		越南		坦桑尼亚	
	城市	农村	城市	农村	城市	农村
5岁以下婴幼儿的死亡率（‰）	52	82	108	138	16	36
能够使用充足卫生设施家庭所占的百分比	77	23	53	43	92	50
受教育年限中位值（男性）	8	4	6	3	9	6
用电家庭所占的百分比	93	56	38	1	99	87

城市化率和收入水平散点图

居住在城市的人口占总人口的百分比（%）

100
80
60
40
20
0

0 9 000 18 000 27 000 36 000 45 000

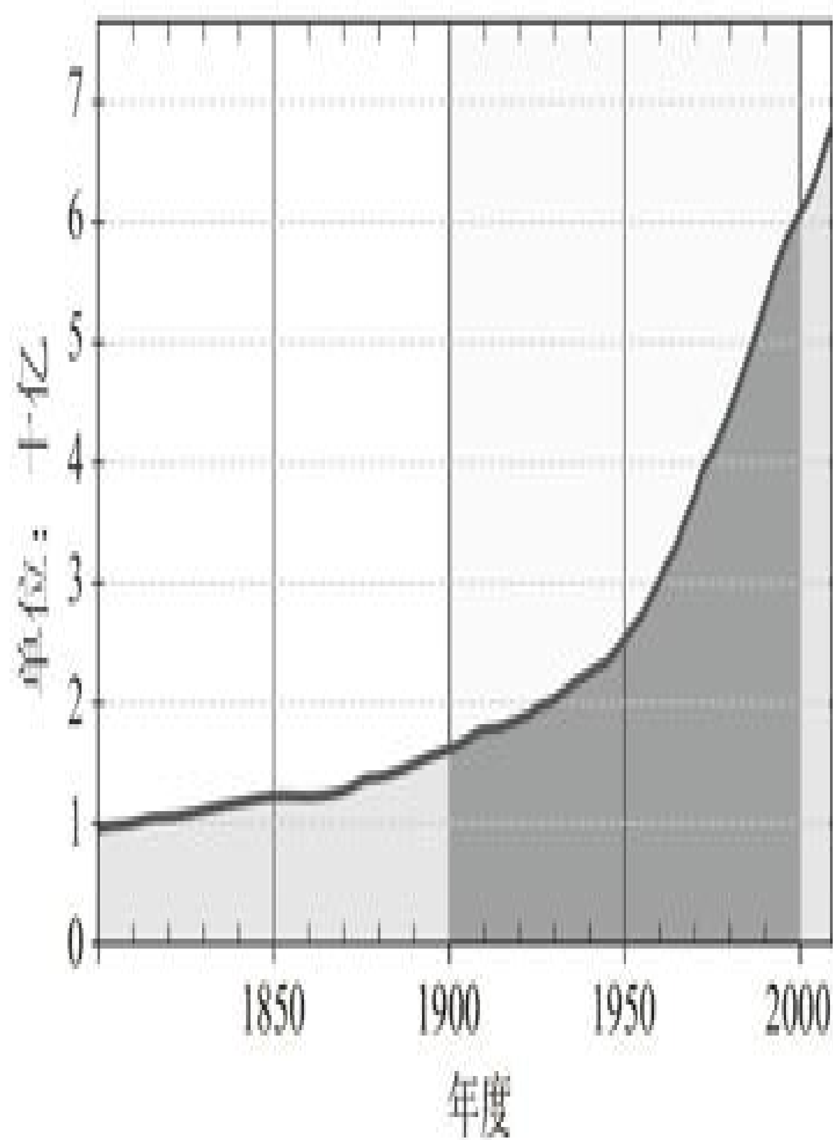
人均GDP（购买力调整后的美元）

[illegible]

[illegible]http://earthtrends.wri.org/updates/node/287; UN (population) and World Bank (GDP).

CHART 图表54

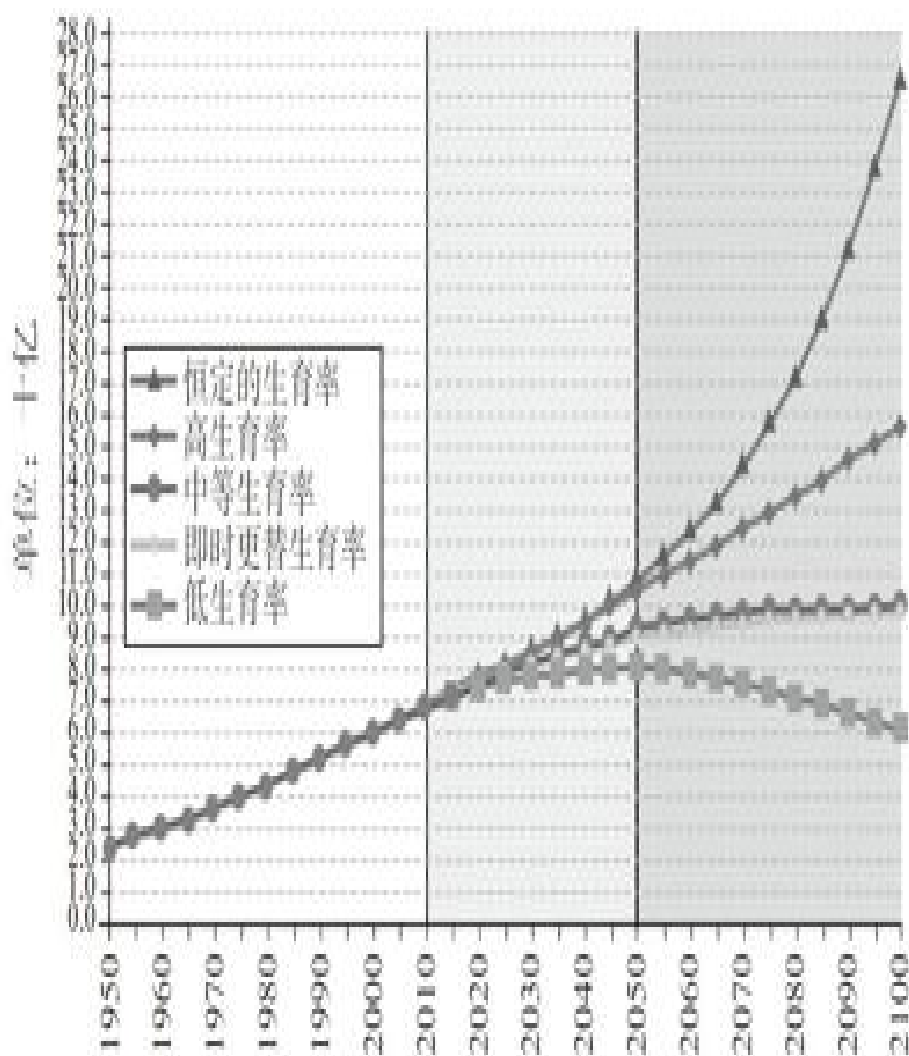
世界人口发展状况（1800—2009年）



□□□□□Generated on Wolfram Alpha.



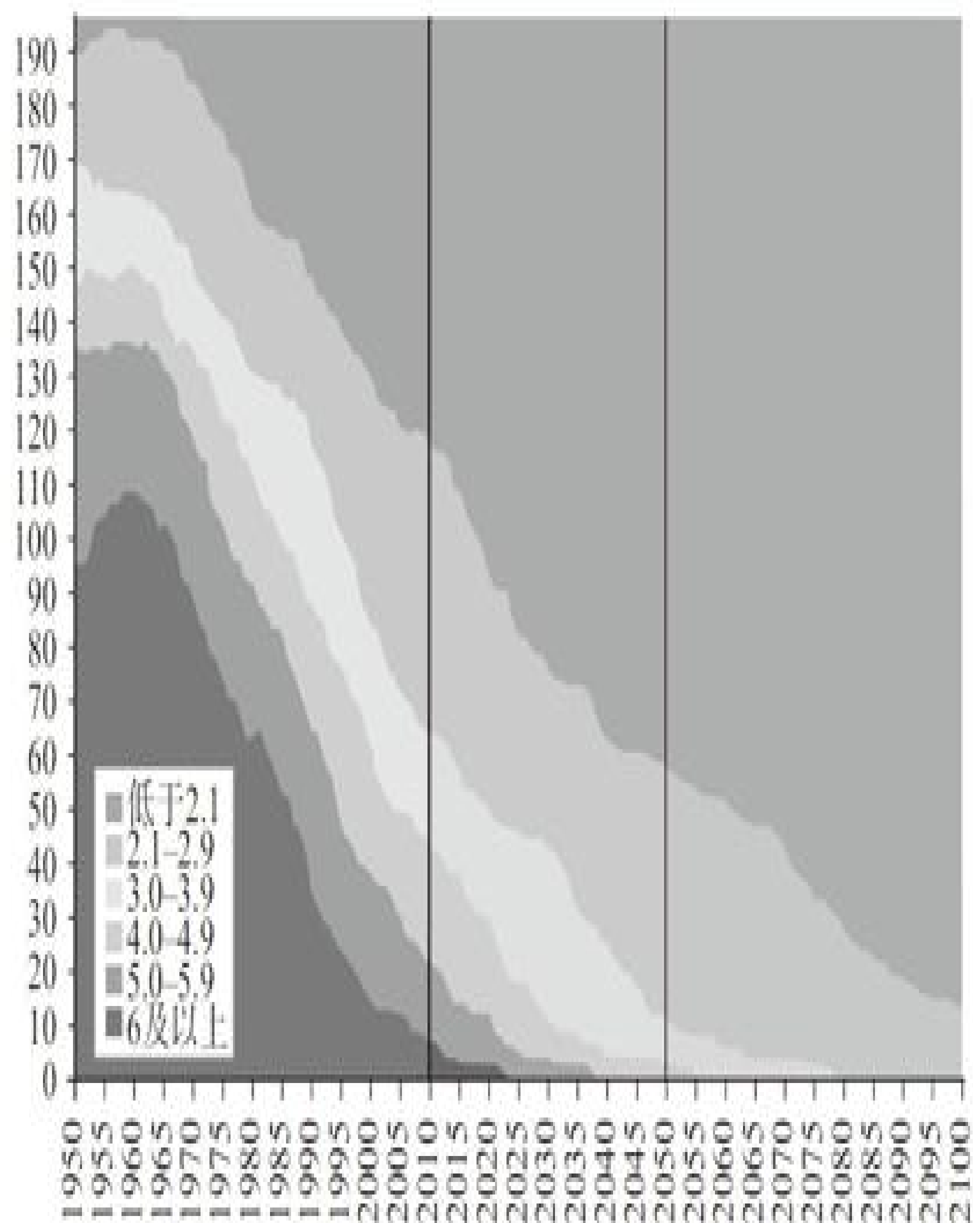
对人口变化情况的估计和预测（1950—2100年）



□□□□□□□□□□2010 □□□□□□2010 Revision of World Population Prospects□□□□□□□□□□□□□□□□2011□□□□69□□□□2050□□93□□□□2100□□□□□□101□□

[illegible]2005—2010[illegible]
2100[illegible]270[illegible]

[illegible]http://esa.un.org/wpp/Analytical-Figures/htm/fig_1.htm.



[illegible]2100[illegible]2.1[illegible]2.1[illegible]1950—2100[illegible]

[illegible]http://esa.un.org/unpd/wpp/Analytical-Figures/htm/fig_9.htm.

图表57 CHART 每位妇女生育孩子的数量及婴幼儿死亡率的演变

土耳其，1950年
阿尔及利亚，1953年
阿尔及利亚，2008年
墨西哥，1959年
墨西哥，2010年
土耳其，2010年
5岁以下婴幼儿的死亡率（‰）
对数坐标
每位妇女生育孩子的数量（总生育率）
lin

[illegible]5[illegible]

□□□□□□□□□□□□□□□□□□□□□□□

□□□□Gapminder□Hans Rosling.

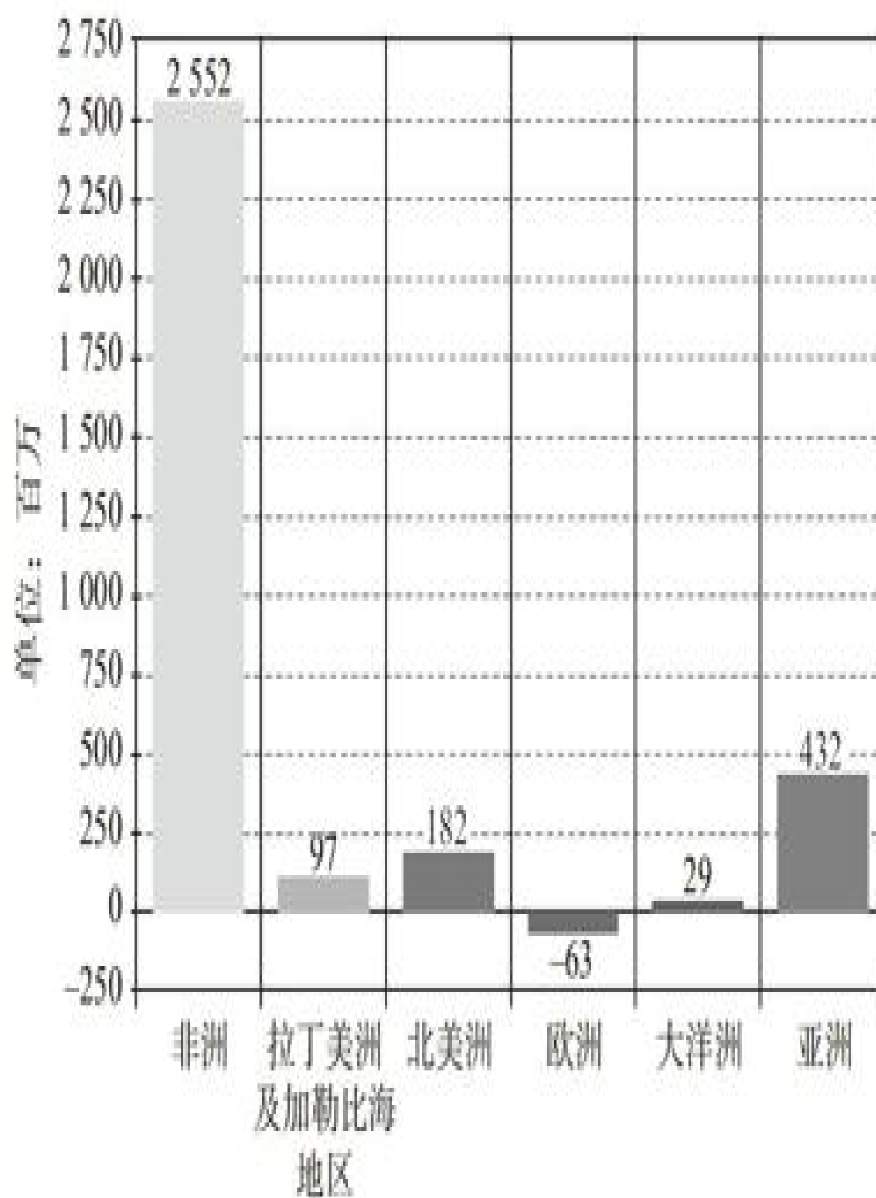
图表58 CHART 每位妇女生育孩子的数量及婴幼儿死亡率（2009年）

[illegible]5[illegible]

[illegible]Gapminder[illegible]Hans Rosling.

图表59 CHART

各主要地区的人口变化（2010—2100年）



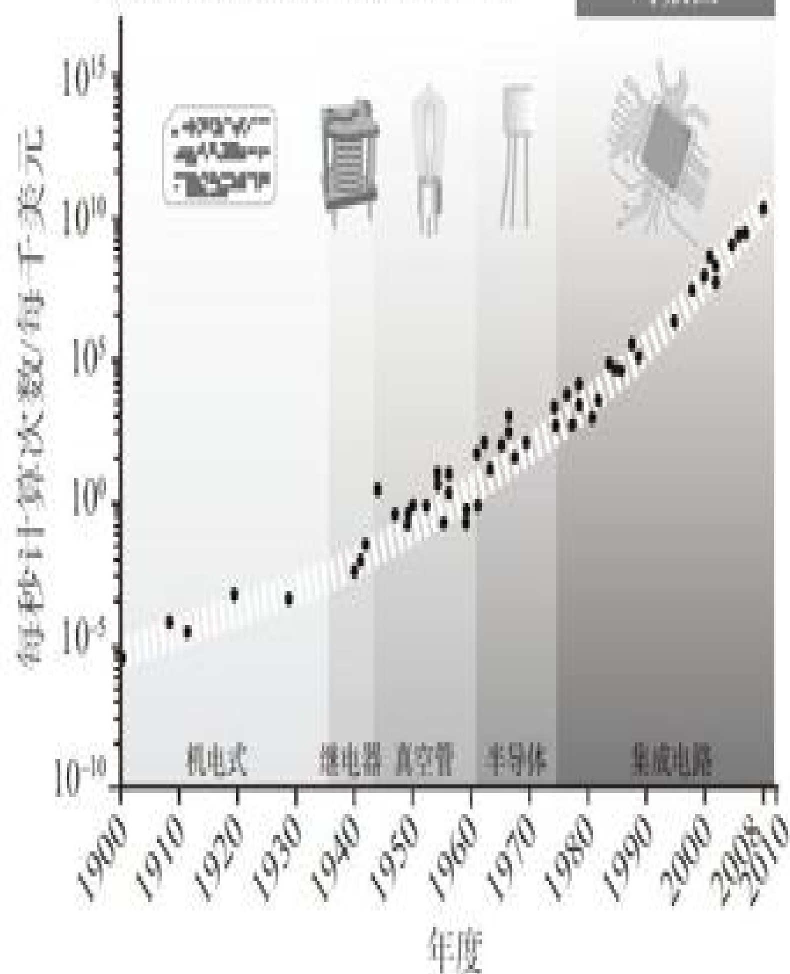
□□□□□http://esa.un.org/unpd/wpp/Analytical-Figures/htm/fig_13.htm.

□□□□□



过去100年来计算能力的指数型增长

摩尔定律是第五个描述计算能力呈指数型加速发展趋势的定律，而不是第一个



[illegible]100[illegible]

[illegible]Kurzweil, The Singularity Is Near.

CHART 图表61

计算能力的指数型增长（对数图）

价值1 000美元便携式电脑每秒钟计算次数随时间变化情况

所有人类的大脑的计算能力

10^{26}

10^{16}

10^{11}

10^{8}

老鼠的计算能力

昆虫的计算能力

一个人的大脑的计算能力

每秒计算次数/每千美元

10^{60} 10^{55} 10^{50} 10^{45} 10^{40} 10^{35} 10^{30} 10^{25} 10^{20} 10^{15} 10^{10} 10^{5} 10^{0} 10^{-5} 10^{-10}

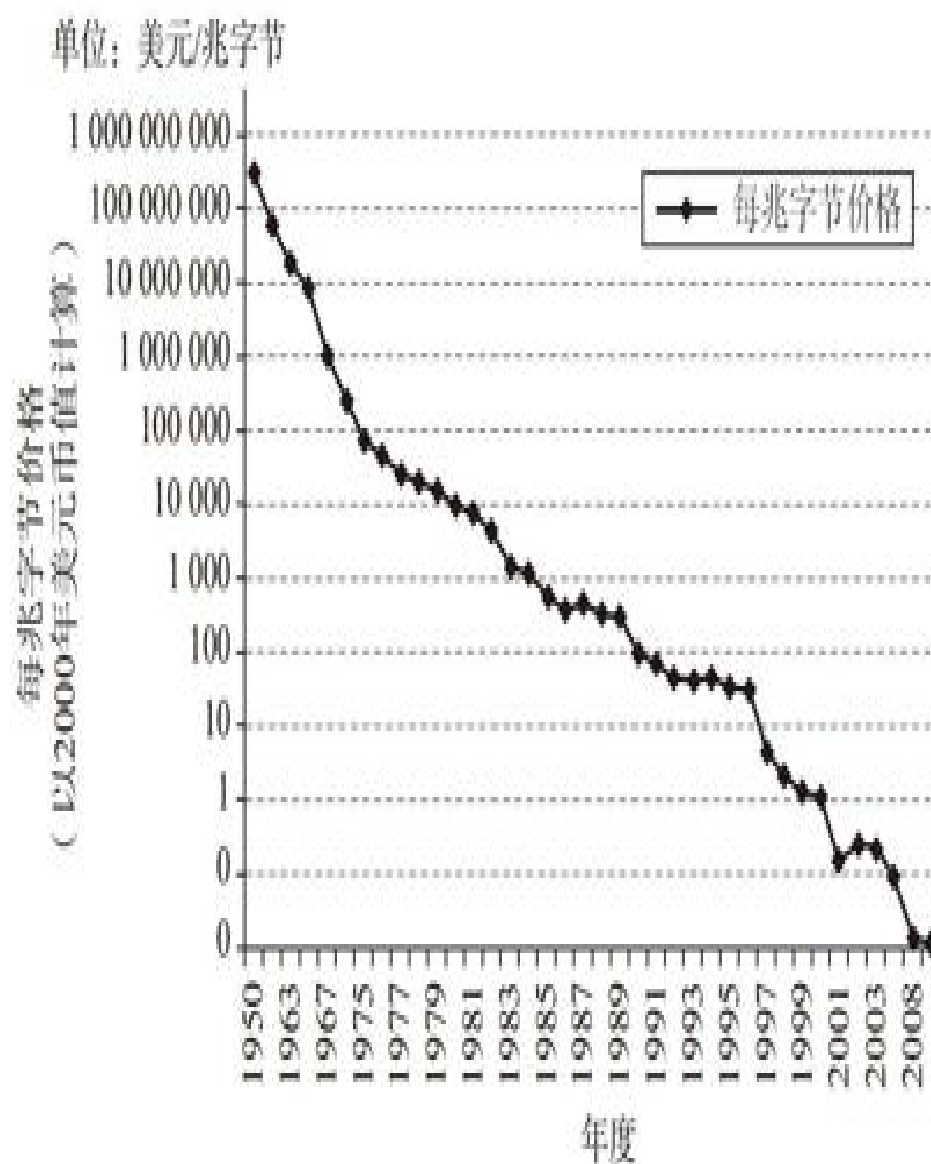
1900 1920 1940 1960 1980 2000 2020 2040 2060 2080 2100

年度

□□□□□Kurzweil, The Singularity Is Near.



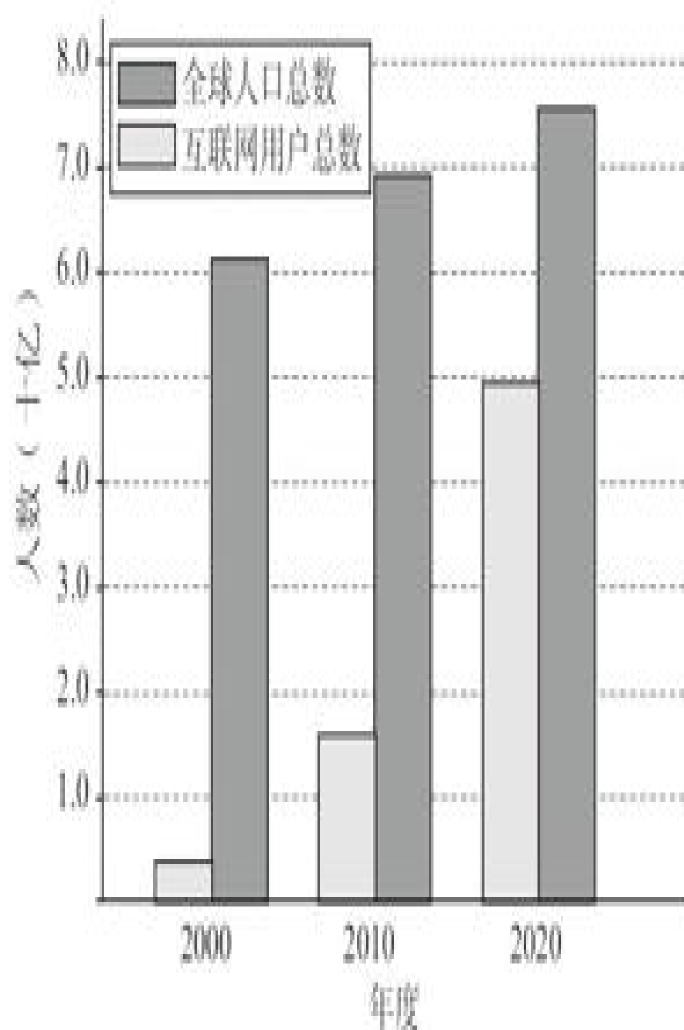
1950—2008年内存价格的指数型下跌



□□□□□Kurzweil, The Singularity Is Near.



全球人口及互联网用户总数（2000—2020年）



□□□□□http://www.futuretimeline.net/21stcentury/2020-2029.htm#ref3.

图表 CHART 64

每分钟上传到 YouTube 的视频时长

2011年12月，每分钟上传到YouTube的视频的时长达到了48小时

50
45
40
35
30
25
20
15
10
5
0

视频的时长

2007.06 2007.08 2007.10 2007.12 2008.02 2008.04 2008.06 2008.08 2008.10 2008.12 2009.02 2009.04 2009.06 2009.08 2009.10 2009.12 2010.02 2010.04 2010.06 2010.08 2010.10

□□□□□□□□□□□□□□□□YouTube□□□□□□□□□□□□□□□□□2011□12□□□□□□□□□YouTube□□□□□□□□48□□□

□□□□□http://www.youtube.com/t/press_statistics; http://youtubeglobal.blogspot.com/2010/11/great-scott-over-35-hours-of-video.html; http://youtubeglobal.blogspot.com/2011/05/thanks-youtube-community-for-two-big.html.

□□□100□□□□□□□□□□□□□100□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□http://www.itu.int/ITU-D/ict/publications/idi/2011/Material/MIS_2011_without_annex_5.pdf; http://www.itu.int/ITU-D/ict/publications/idi/2010/Material/MIS_2010_without_annex_4-e.pdf.

图表66 CHART

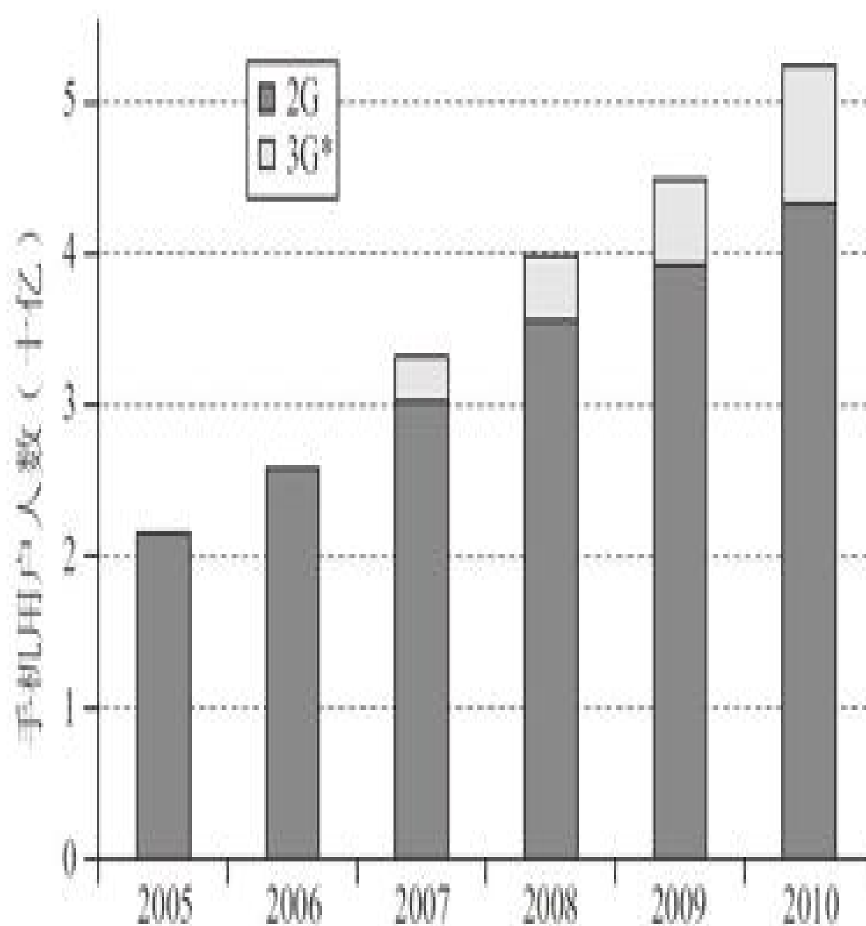
手机宽带入网用户增长率（2007—2010年）

□□

□□□□□http://www.itu.int/ITU-D/ict/publications/idi/2011/Material/MIS_2011_without_annex_5.pdf.

图表67 CHART

2G 手机用户、3G 手机用户的增长情况



注：3G手机用户包括专用移动数据用户。

□□□□□http://www.itu.int/ITU-D/ict/publications/idi/2011/Material/MIS_2011_without_annex_5.pdf.

图表68 CHART

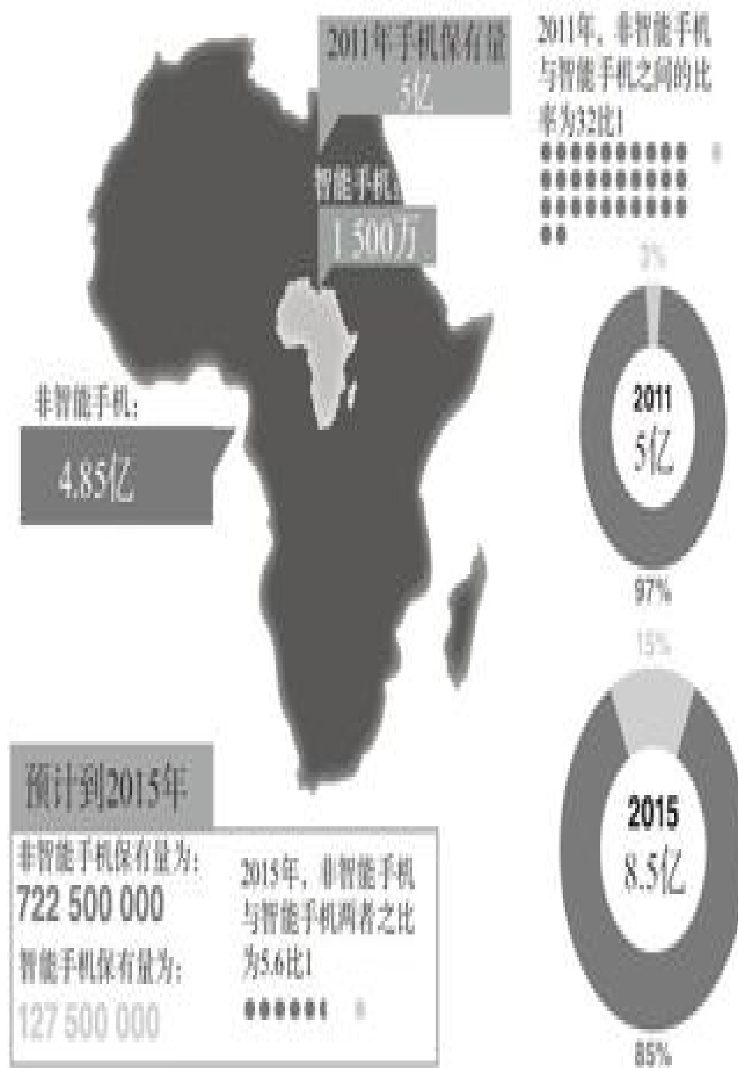
国际互联网总带宽（2000—2010年）

□□

□□□□□http://www.itu.int/ITU-D/ict/publications/idi/2011/Material/MIS_2011_without_annex_5.pdf; http://www.itu.int/ITU-D/ict/publications/idi/2010/Material/MIS_2010_without_annex_4-e.pdf.



非洲2G手机和3G手机普及率（2011—2015年）

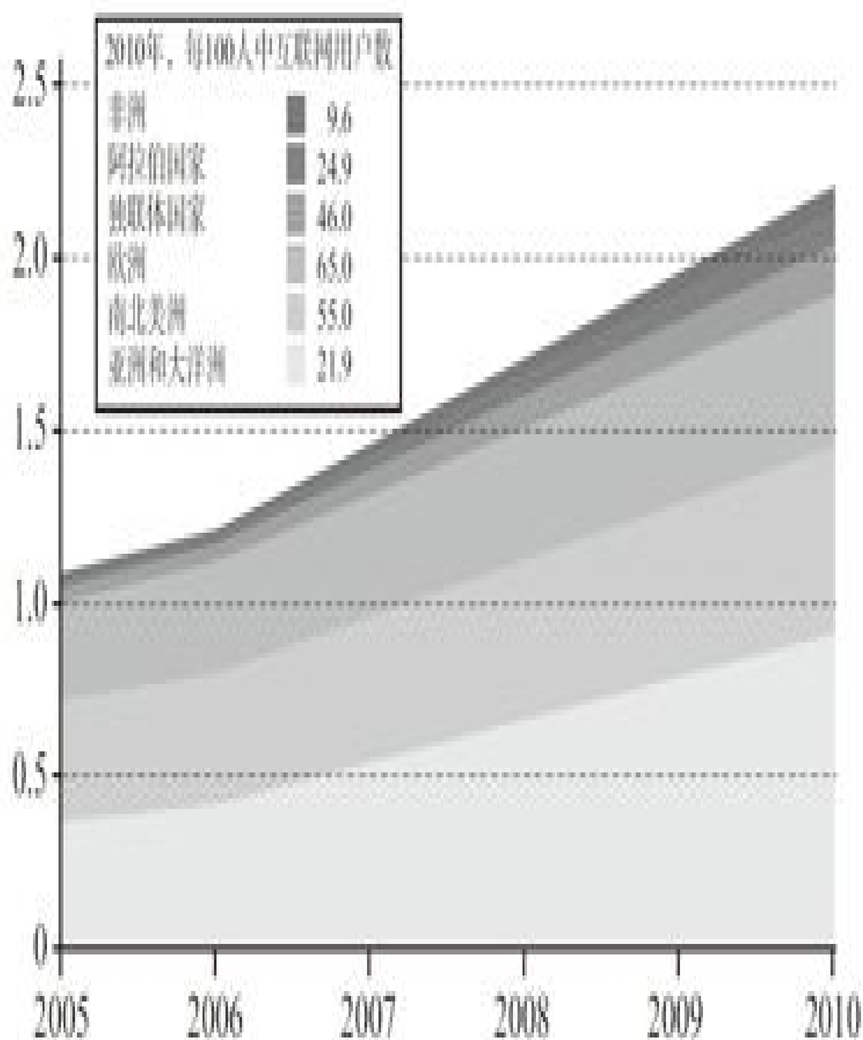


□□□□□□□□5□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□

□□□□□http://afrographique.tumblr.com/post/7087562485/infographicdepicting-smart-and-dumb-mobile.

图表 70 CHART

互联网用户总数（2005—2010 年），以及每 100 人中互联网用户数（2010 年）



2005—2010[illegible]2010[illegible]

- 2005—2010[illegible]

- 2010 [illegible] 20 [illegible] 12[illegible]

- [illegible] [illegible] [illegible]

- [illegible] 4.2[illegible]

- [illegible]71%[illegible] 21%[illegible]2010[illegible] 9.6%[illegible]30%[illegible] [illegible]21%[illegible]

[illegible]http://www.itu.int/ITU-D/ict/material/FactsFigures2010.pdf.

图表 71 CHART

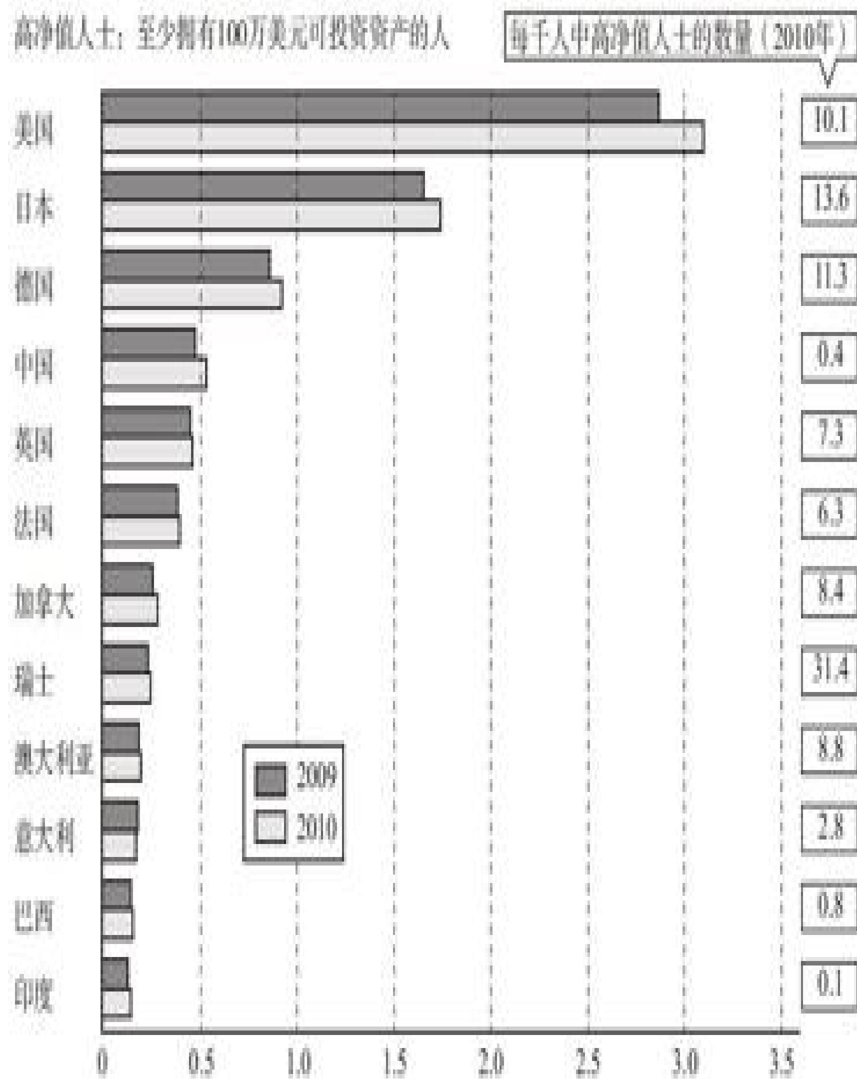
只能通过手机上网的用户数

	2010	2011	2012	2013	2014	2015
全世界	13 976 859	31 860 295	78 855 662	188 375 368	487 426 725	783 324 804
亚太地区	2 448 932	6 768 196	20 543 294	67 012 433	240 350 642	420 277 951
拉丁美洲	1 329 853	4 040 217	12 720 259	26 665 349	49 199 321	71 548 055
北美	2 615 787	4 218 310	6 550 322	14 257 565	38 783 886	55 646 710
西欧	5 237 113	10 348 310	21 163 143	33 524 429	58 670 609	83 364 841
日本	441 060	1 021 441	3 322 664	10 780 236	21 462 108	31 876 988
中东欧	1 156 893	3 140 746	8 252 679	20 303 462	38 480 441	58 717 045
中东和非洲	747 221	2 323 065	6 303 302	15 831 895	40 479 719	66 893 204

[illegible]2012[illegible]2013[illegible]2014[illegible]2015[illegible]

[illegible]Cisco VNI Mobile, 2011.

□□□□

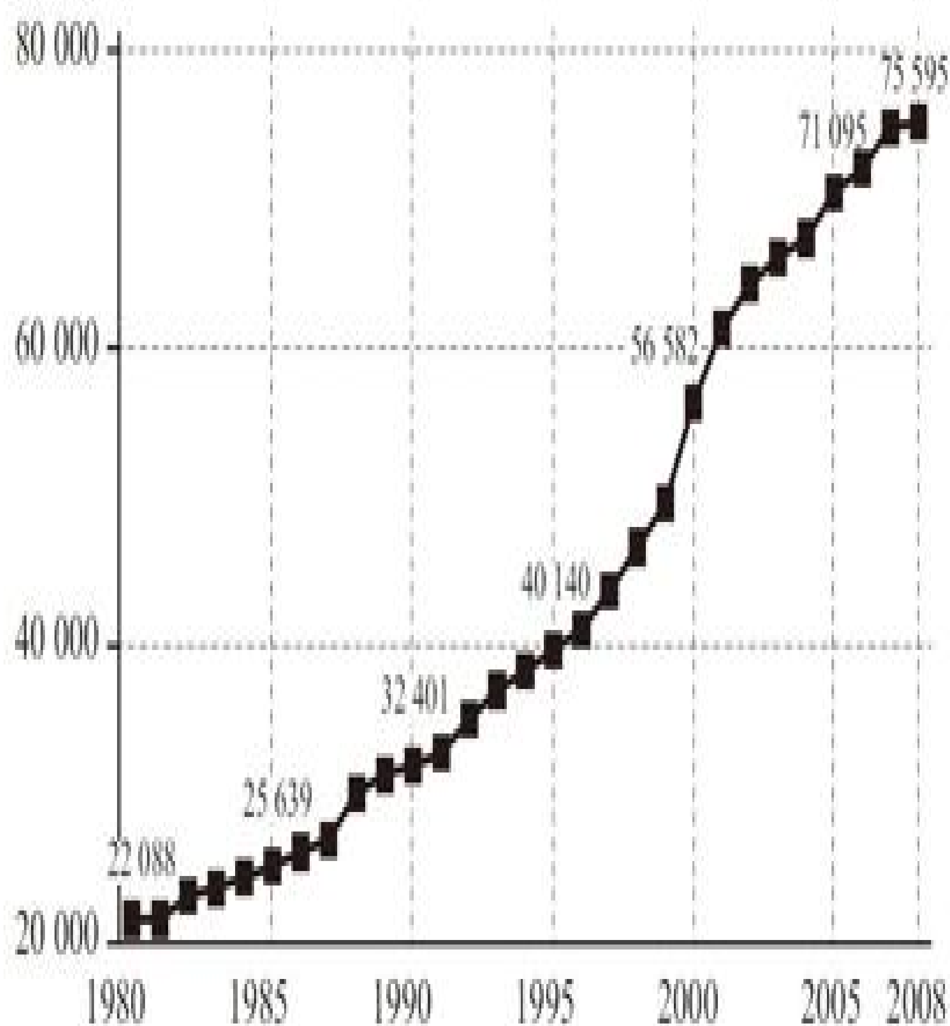


□□□□□http://www.economist.com/blogs/dailychart/2011/06/rich from http://www.capgemini.com/services-and-solutions/by-industry/financial-

services/solutions/wealth/worldwealthreport.

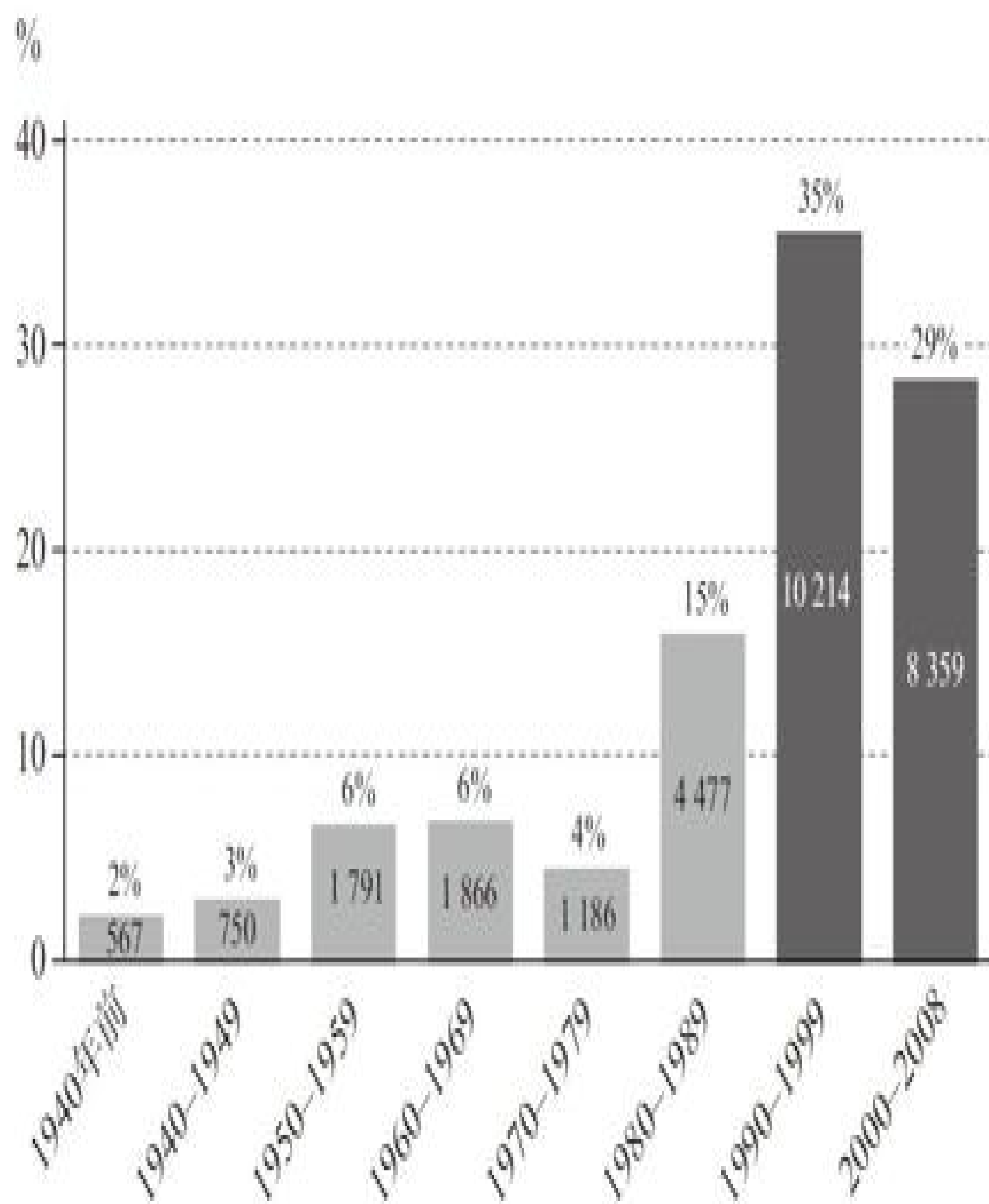


活跃的私人和共同基金会的数量



□□□□□□□20□□□□□□□□□□□□□□□□□□□□□□

US Foundation Center (2010),
http://foundationcenter.org/findfunders/statistics;
http://foundationcenter.org/gainknowledge/research/pdf/fgge10.pdf.



图表 74
CHART
活跃的私人和共同基金会的数量增长情况
%
40
30
20
10
0
2%
567
3%
750
6%
1 791
6%
1 866
4%
1 186
15%
4 477
35%
10 214
29%
8 359
1940年前
1940–1949
1950–1959
1960–1969
1970–1979
1980–1989
1990–1999
2000–2008

□□□□□□□□□□□□□□□□□□□□□□□2/3□□1989□□□100□□□□□□□□

[illegible]US Foundation Center (2010),
http://foundationcenter.org/findfunders/statistics;
http://foundationcenter.org/gainknowledge/research/pdf/fgge10.pdf.

[illegible]

图表75 今天一部智能手机中的应用软件价值超过 90 万美元

应用软件名称	2011 年的价格（美元）	原来适用的设备名称	最早出现的年份	当初的建议零售价格（美元）	以 2011 年美元币值计算的当初的建议零售价格（美元）
1 Video conferencing	免费	Compression Labs VC	1982	250 000	586 904
2 GPS	免费	TI NAVSTAR	1982	119 900	279 366
3 Digital voice recorder	免费	SONY PCM	1978	2 500	8 687
4 Digital watch	免费	Seiko 35SQ Astron	1969	1 250	7 716
5 5 Mpixel camera	免费	Cabib RC-701	1986	3 000	6 201
6 Medical library	免费	e.g. CONSULTANT	1987	2 000	3 988
7 Video player	免费	Toshiba V-8000	1981	1 245	3 103
8 Video camera	免费	RCA CC010	1981	1 050	2 617
9 Music player	免费	Sony CDP-101 CD player	1982	900	2 113
10 Encyclopedia	免费	Compton's CD Encyclopedia	1989	750	1 370
11 Encyclopedia	免费	Atari 2600	1977	199	744
总计	免费				902 065 美元

□□□□□1□ http://www.nefsis.com/Best-Video-Conferencing-Software/video-conferencing-history.html

□2□ http://www.americanhistory.si.edu/collections/surveying/object.cfm?recordnumber =998407

□3□ http://www.videointerchange.com/audio_history.htm

□4□ http://www.shvoong.com/humanities/1714780-history-digital-watch

□5□ http://www.digicamhistory.com/1986.html

□6□ http://www.tnyurl.com/63ljueq

□7□ http://www.mrbetamax.com/OtherGuys.htm

□8□ http://www.cedmagic.com/museum/press/release-1981-02-12-1.html

□9□ http://www.digicamhistory.com/1980_1983.html

□10□ http://www.mba.tuck.dartmouth.edu/pdf/2000-2-0007.pdf

□11□ http://www.thegameconsole.com/atari-2600/

图表76 CHART

iPad 2 的运算速度与 1985 年的超级计算机作对比

	超级计算机格雷 2（1985 年）	iPad 2（2011 年）	差异（iPad 2/ 格雷 2）
重量	2 495 千克	610-613 克，已配备 Wi-Fi 和 3G	1/4 000
大小	高 1.1 米，直径 1.35 米，总体积 1.63 立方米	24 × 19 × 0.86 厘米，总体积 0.000 4 立方米	1/4 000
成本	1 750 万美元（1985 年币值）；3 620 万美元（2011 年币值）	699 美元（2011 年币值）；338 美元（1985 年币值）	1/51 775
处理能力（CPU）	244MHz	1GHz	处理速度增加了 4 倍
内存	2GB RAM	512MB DDR2	1/4
能耗（瓦）	150-200 千瓦	10 瓦	1/15 000

□□□□□http://bits.blogs.nytimes.com/2011/05/09/the-ipad-in-your-hand-as-fast-as-a-supercomputer-of-yore;
http://archive.computerhistory.org/resources/text/Cray/Cray.Cray2.1985.102646185.pdf;

http://en.wikipedia.org/wiki/Cray-3; 2 GB; RAM;
http://www.cs.umass.edu/~weems/CmpSci635A/Lecture16/L16.16.html15,000;
http://books.google.com/books?id=LkrTkAa10McC&pg=PA61-IA8; Cray 2
Brochure;

http://www.craysupercomputers.com/downloads/Cray2/Cray2_Brochure001.pdf.

图表77 CHART

iPhone（2007年）与Osborne Executive电脑（1982年）的对比

	Osborne Executive电脑（1982年）	iPhone（2007年）	两者的差异
重量	12.9千克	135克	后者是前者的约1/100
大小	23×52×33厘米，总体积39 470立方厘米	11.5×6.1×1.16厘米，总体积81立方厘米	后者是前者的1/500
成本	2 495美元（1982年币值）；5 759美元（2011年币值）	599美元或399美元（2007年币值）；279美元或186美元（1982年币值）	后者是前者的1/14~1/10（以不变美元币值计）
处理能力（CPU）	4.0MHz	620MHz	后者是前者的155倍
存储空间	最大720KB	最大8GB闪存	后者是前者的11 650倍以上
内存	最大384KB	128MB eDRAM	后者是前者的341倍以上
显示器	80字符×24行，单色显示	320×480，18-bit彩色液晶显示	不可比
摄像头与视频	无	200万像素摄像头	不可比
软件	装在软盘上	多任务	不可比
通信能力	调制解调器（速度为0.3 KB/秒）	Wi-Fi（11MB/秒），蓝牙，GPS	后者是前者的26 666倍以上

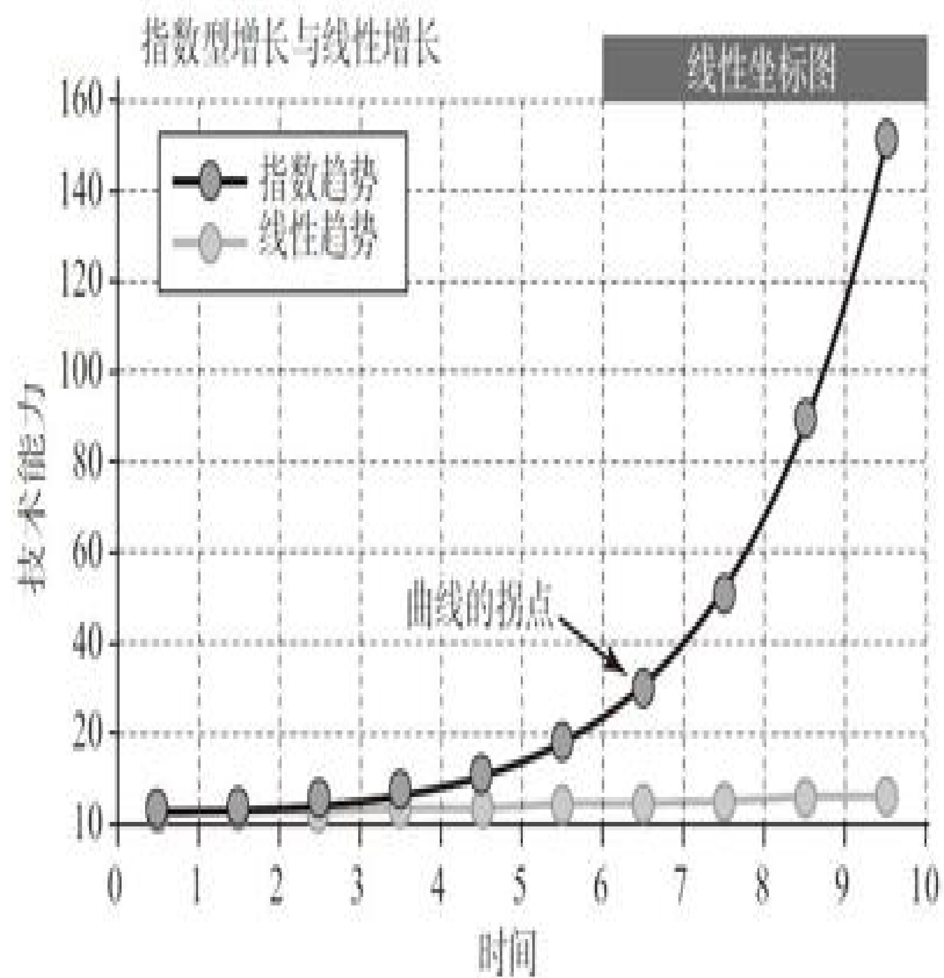
□□□□ http://www.computermuseum.li/Testpage/OsborneExecSpecs.htm; http://en.wikipedia.org/wiki/Osborne_Executive;

http://en.wikipedia.org/wiki/IPhone.

□□□□□□□

图表78 CHART

指数型增长曲线与线性增长曲线



□□Kurzweil, The Singularity Is Near.

图表79 CHART

指数型增长曲线

[illegible]S[illegible]S[illegible]

[illegible]Kurzweil, The Singularity Is Near.

图表80 CHART

加特纳技术成熟度曲线

媒体上的曝光度

过高期望的峰值

实质生产的高峰期

稳步爬升的光明期

泡沫化的低谷期

科技诞生的促动期

成熟度

□□

□□□□□http://www.gartner.com/it/page.jsp?id=1124212.

[illegible] 2

[illegible]

[illegible]

[illegible]2000[illegible]4[illegible] [illegible]·[illegible]21[illegible]

[illegible]……[illegible]

[illegible]

[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]2008[illegible]·[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]

[illegible]

[illegible]

“[illegible]‘[illegible]’[illegible]”[illegible]·[illegible]Andrew Hessel[illegible]“DIY[illegible]”[illegible]“[illegible]”

[illegible]DNA[illegible]1918[illegible]5 000[illegible]“[illegible]”[illegible]DNA[illegible]·[illegible]Lord Martin Rees[illegible]2002[illegible]1 000[illegible]“[illegible]2020[illegible]100[illegible]”

[illegible]·[illegible]Larry Brilliant[illegible]·[illegible]“[illegible]”[illegible]“[illegible]”

[illegible]“[illegible]2009[illegible]H1N1 [illegible]H1N1[illegible]”[illegible]“[illegible]”[illegible]

[illegible]1919[illegible]366%[illegible]1 000%[illegible]88% [illegible]·[illegible]“[illegible]

[illegible]”

[illegible]

“[illegible]”[illegible]·[illegible]101[illegible]“[illegible]”

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]Twitter[illegible]Facebook[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

“[illegible]”[illegible]“[illegible]”

[illegible]2011[illegible]5[illegible]3 200[illegible]“[illegible]”[illegible]·[illegible]Linda Rosenstock[illegible]“[illegible]”

[illegible]·[illegible]

[illegible]·[illegible]2011[illegible]8[illegible]3[illegible]

[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]4[illegible]5[illegible]·[illegible]Stan Lee[illegible]“[illegible]”[illegible]

[illegible]

[illegible]·[illegible]Marc Goodman[illegible]4[illegible]

[illegible]“[illegible]”[illegible]“[illegible]60 000[illegible]”

[illegible]“[illegible]”[illegible]

[illegible]

[illegible]“[illegible]”[illegible]“[illegible]Facebook[illegible]”

[illegible]“[illegible]”[illegible]“[illegible]”

[illegible]“[illegible]”[illegible]“[illegible]95%[illegible]”

[illegible]2011[illegible]9[illegible]9[illegible]·[illegible]Richard Blumenthal[illegible]10 000[illegible]5 000[illegible]2 000[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”

[illegible]“[illegible]

[illegible]”

[illegible]

[illegible]10[illegible]7[illegible]24[illegible]——[illegible]

[illegible]1862[illegible]90%[illegible]20[illegible]30[illegible]21%[illegible]2%[illegible]*Second Life*[illegible]·[illegible]Philip Rosedale[illegible]“[illegible]IT[illegible]”

[illegible]·[illegible]Vivek Wadhwa[illegible]“[illegible]20[illegible]‘[illegible]’[illegible]‘[illegible]’[illegible]”

[illegible]·[illegible]“[illegible]”

[illegible]2011[illegible]·[illegible]Douglas Rushkoff[illegible]

[illegible]

[illegible]

[illegible]2 720[illegible]

[illegible]

[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]·[illegible]“[illegible]”

[illegible]Luddite[illegible]·[illegible]slow food movement[illegible]Amish[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible]——[illegible]·[illegible]Scott Summit[illegible]3D[illegible]“[illegible]”[illegible]·[illegible]“[illegible]‘[illegible]’[illegible]”

[illegible]4 000[illegible]“[illegible]”[illegible]4 000[illegible]

[illegible]

[illegible]·[illegible]“[illegible]”[illegible]

[illegible]·[illegible]Susan Fisher[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]“[illegible]”[illegible]15[illegible]·[illegible]“[illegible]

[illegible]”

[illegible]“[illegible]”[illegible]

[illegible]

[illegible]·[illegible]

[illegible]40[illegible]PM2.5[illegible]

[illegible]

[illegible]X[illegible]X[illegible]X[illegible]X[illegible]·[illegible]5 000[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

THE FUTURE IS BETTER THAN YOU THINK

ABUNDANCE

赞 誉

[illegible]“DIY”[illegible]10[illegible]4[illegible]“[illegible]”[illegible]

[illegible]

[illegible]

[illegible]……[illegible]“[illegible]”[illegible]“[illegible]”[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]“[illegible]”[illegible]

[illegible]

[illegible]

[illegible]4[illegible]

[illegible]

[illegible],[illegible]

[illegible]“[illegible]”[illegible]“[illegible]10[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]“[illegible]”[illegible]——[illegible]

[illegible]

[illegible]

[illegible]·[illegible]99.99999%[illegible]“[illegible]”[illegible]

[illegible]

[illegible]

700[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Tesla[illegible]CEO[illegible]SpaceX[illegible]CEO[illegible]PayPal[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

eBay[illegible]Participant Productions[illegible]

湛庐，与思想有关……

如何阅读商业图书

商业图书与其他类型的图书，由于阅读目的和方式的不同，因此有其特定的阅读原则和阅读方法，先从一本书开始尝试，再熟练应用。

阅读原则1 二八原则

对商业图书来说，80%的精华价值可能仅占20%的页码。要根据自己的阅读能力，进行阅读时间的分配。

阅读原则2 集中优势精力原则

在一个特定的时间段内，集中突破20%的精华内容。也可以在一个时间段内，集中攻克一个主题的阅读。

阅读原则3 递进原则

高效率的阅读并不一定要按照页码顺序展开，可以挑选自己感兴趣的部分阅读，再从兴趣点扩展到其他部分。阅读商业图书切忌贪多，从一个小主题开始，先培养自己的阅读能力，了解文字风格、观点阐述以及案例描述的方法，目的在于对方法的掌握，这才是最重要的。

阅读原则4 好为人师原则

在朋友圈中主导、控制话题，引导话题向自己设计的方向去发展，可以让读书收获更加扎实、实用、有效。

阅读方法与阅读习惯的养成

（1）回想。阅读商业图书常常不会一口气读完，第二次拿起书时，至少用15分钟回想上次阅读的内容，不要翻看，实在想不起来再翻看。严格训练自己，一定要回想，坚持50次，会逐渐养成习惯。

（2）做笔记。不要试图让笔记具有很强的逻辑性和系统性，不需要有深刻的见解和思想，只要是文字，就是对大脑的锻炼。在空白处多写多画，随笔、符号、涂色、书签、便签、折页，甚至拆书都可以。

（3）读后感和PPT。坚持写读后感可以大幅度提高阅读能力，做PPT可以提高逻辑分析能力。从写读后感开始，写上5篇以后，再尝试做PPT。连续做上5个PPT，再重复写三次读后感。如此坚持，阅读能力将会大幅度提高。

（4）思想的超越。要养成上述阅读习惯，通常需要6个月的严格训练，至少完成4本书的阅读。你会慢慢发现，自己的思想开始跳脱出来，开始有了超越作者的感觉。比拟作者、超越作者、试图凌驾于作者之上思考问题，是阅读能力提高的必然结果。

好的方法其实很简单，难就难在执行。需要毅力、执著、长期的坚持，从而养成习惯。用心学习，就会得到心的改变、思想的改变。阅读，与思想有关。

[特别感谢：营销及销售行为专家 孙路弘 智慧支持！]

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阅读的最大成本

读者在选购图书的时候，往往把成本支出的焦点放在书价上，其实不然。

时间才是读者付出的最大阅读成本。

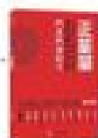
阅读的时间成本=选择花费的时间+阅读花费的时间+误读浪费的时间

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我们知道，这项工作就像跑马拉松，是极其漫长和艰苦的。但是我们有决心和毅力去不断推动，在朝着我们目标前进的道路上，所有人都是同行者和推动者。希望更多的专家、学者、读者一起来加入我们的队伍，在当下改变未来。

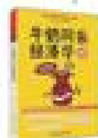
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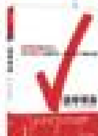
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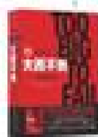
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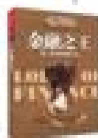
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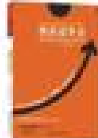
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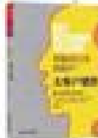


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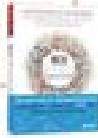


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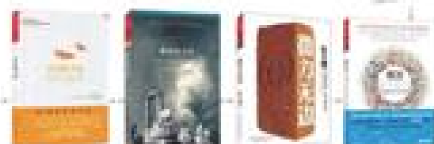
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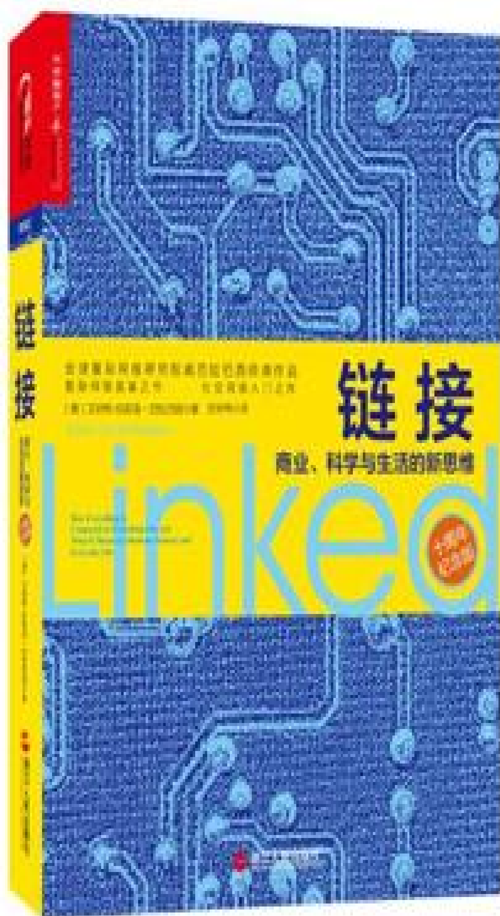
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